a W. R. C. Smith publication

FIFTY CENTS

# Textile Industries

Formerly "COTTON"

MARCH, 1958

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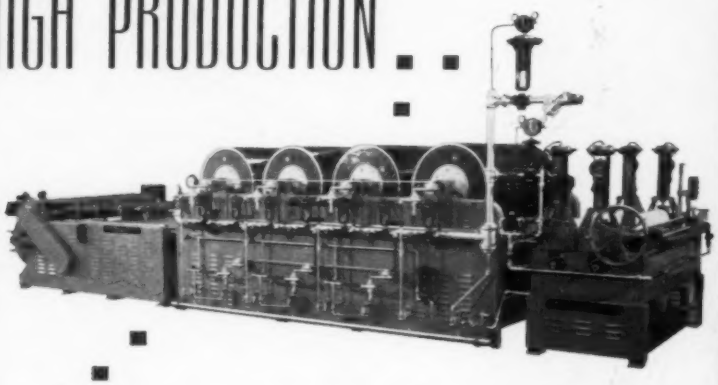
HIGH PRODUCTION . . .



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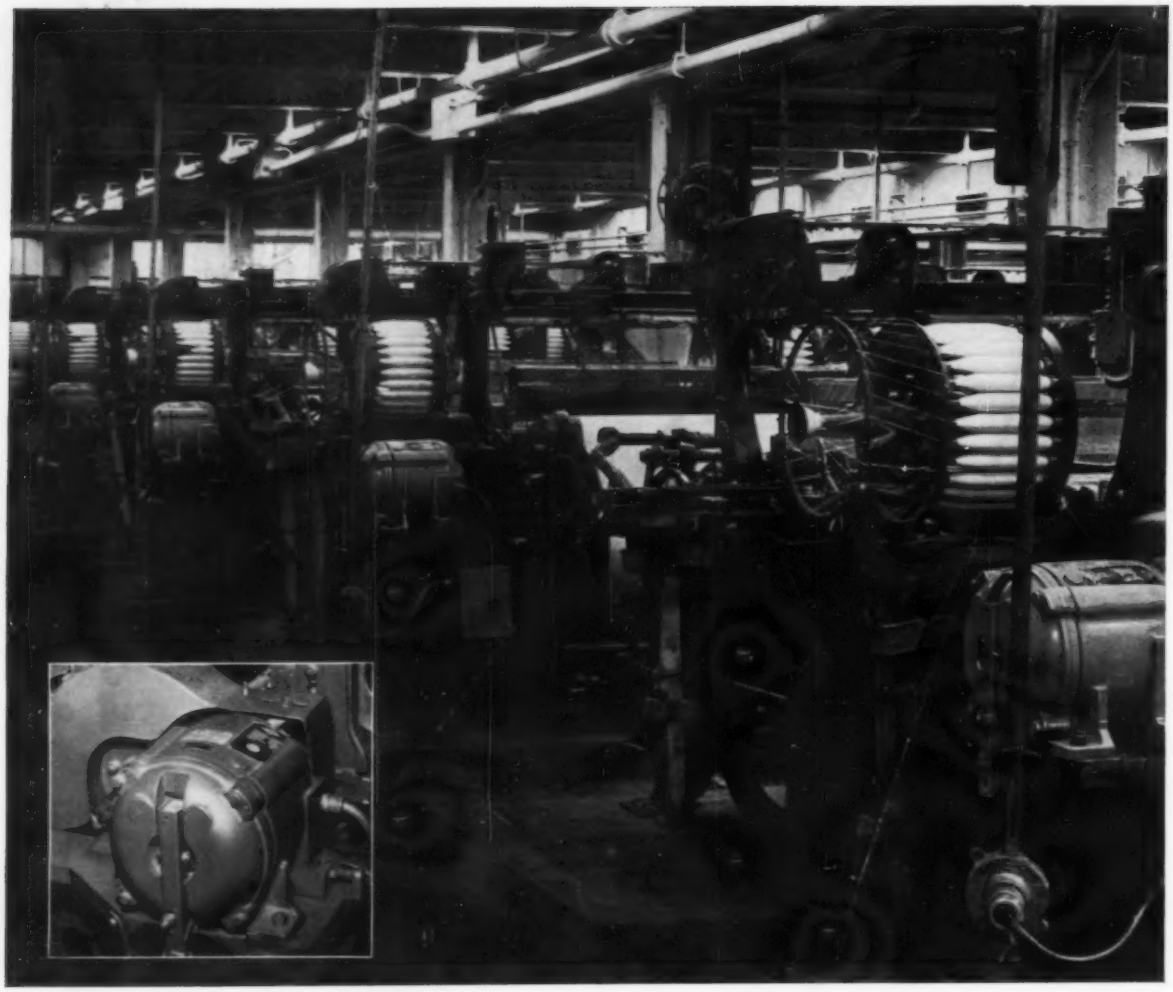
Next month: Knitting Production Methods



AT THE SPRINGS COTTON MILLS

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The management of The Springs Cotton Mills, Inc. is definitely interested in cutting downtime wherever and whenever possible. Therefore, in the world's largest weave room under one roof . . . in their Lancaster, S. C. mill . . . they selected DIEHL Power Transmitters to drive some three thousand looms. As a result, Springs Mills reports loom downtime due to motor failure is "most unusual."

Springs Mills people know what they want, particularly when it comes to textile mill equipment. They know first quality equipment is the key to first quality textiles. DIEHL is proud of its part in helping Springs Mills produce highest quality goods at low operating costs. DIEHL can do the same for your mill, too. Specify DIEHL Power Transmitters for your looms.

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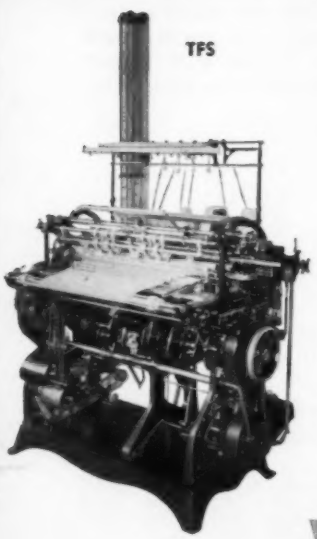


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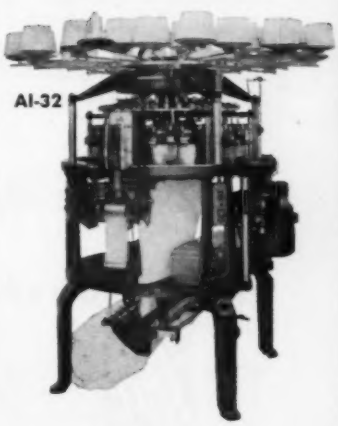


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Becco Silicate-Free methods for continuous Hydrogen Peroxide bleaching have again converted a mill manager's headache to a head start on his competitors. When complex silicates of calcium and magnesium formed scale on equipment and left hard-to-remove residues in the cloth, Becco's recommendation for Silicate-Free Hydrogen Peroxide bleaching solutions resulted in elimination of dye house troubles.

The patented Becco Sjlicate-Free processes**, readily available to the textile industry, not only eliminate dyeing problems, but also—when silicate scale is the offender—minimize seconds and rejects and reduce down-time for equipment cleaning.

This doesn't mean that Silicate-Free bleaching is the answer to every textile problem. But, if you're having troubles due to silicate scale and insoluble residues, Becco Silicate-Free procedures can help you. These methods, created in the laboratory and proved in the mill, are another example of Becco's practical experience in service to the industry.

Fact is, Becco can help you with most of your textile problems, as we've been doing for years, and there's never any obligation. Just drop us a line, at the address below. Also, you might like to have a free copy of Becco's Bulletin No. 71, "Continuous Bleaching of Cottons with Silicate-Free Peroxide Solutions"; ask for it at the same time.

***—U.S. Patents 2,740,689 and 2,820,690*

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# Textile Industries

Formerly "COTTON"

Vol. 122, No. 3
March, 1958

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# TIME SAVER for busy readers

*Here is a summary of some of the major articles in this issue*

*Use it to organize your reading time most effectively*

## Easy Does It! 79

■ If certain precautions are taken, metallic yarns can be woven in the same way as cotton yarns, and with no more trouble. The necessity for the precautions stems from the fact that metallic yarns have little stretchability—when their elastic limit is exceeded they tend to "crawl" until the slack is taken up. If the slack is severe it forms loops.

At Riegel Textile Corp., Trion, Ga., slack is avoided in drapery materials by controlling tension on individual metallic ends as the yarns are beamed. The yarns are wound onto the loom beams from a creel mounted on the slasher front, since they need no sizing.

Riegel's weaving and slashing supervisors gave TI's editors the precautions they take in handling metallic.

## Finishing Plant Keynotes Improved Operations 82

■ About three years ago the operations of the Collins & Aikman Corp. were decentralized, and the firm's automotive division was set up separately. A new finishing plant was then built at Albemarle, N. C., to handle the fabrics produced by the division—upholstery, carpeting, and decorative fabrics.

The new finishing plant has 125,000 sq ft of floor space, and equipment to finish practically every kind of fabric.

Here is a quick view of what's done at the plant, and how it's done, as reported by TI's Carolinas editor, who spent some time at the plant recently.

## The Tape Condenser 86

■ The quality of the roving produced by a woolen card is controlled to a large extent by the settings and maintenance of the tape condenser. How to get better work from the condenser is the theme of a series of three articles, of which this is the first. The author is a carder with years of experience.

Drafting is considered in the first article; subjects discussed include slack drafting, winding tension, tape-to-apron draft, other factors in draft, and wavy web.

Future articles in the series will discuss condensing, the tape doffer, tapes, and other points to consider in the efficient operation of the tape condenser.

## The Textile Mill of 1968 94

■ How will automation affect *your* mill? The author takes a look ten years into the future and predicts widespread use of automatic conveyor systems (monitored by closed-circuit television), electrostatic spinning, greatly increased use of nonwoven fabric techniques, and automatic color control in dyeing, to name but a few innovations that can be expected.

Not all of these will be in common use, and you will have to make your own economic studies to determine which are applicable to your operation. The criterion will not be the actual cost of the machine, but the cost of production, including depreciation charges for the investment in machinery, for the various alternative ways of doing the job.

## Spinning Tests 107

■ The spinning test can be an important tool in evaluating cotton quality or processing equipment, but its successful application requires that a number of pitfalls be avoided. This article tells how to avoid them.

The article discusses the purpose of a spinning test, planning the test, the types of tests, what to measure, statistical techniques, sample size, and interpretation of the results.

## Training Is a Production Tool 140

■ Training of operators must pay off in increased production, fewer seconds, and improved skills. In this article Ralph C. McLeod, director of training at Ware Knitters, Inc., Ware, Mass., tells how to insure that it does.

The author tells how he has adapted a job instruction program to the particular needs of his company; however, the principles which he outlines are applicable to any textile job. He describes management's role in training, the instructor's responsibilities, instruction breakdowns, instruction techniques, and other phases of the training program.

*TEXTILE INDUSTRIES is indexed in the "Applied Science & Technology Index"*

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Photo courtesy Beacon Piece Dyeing & Finishing Co., Inc., Beacon, N. Y.

# A "Liquid Lock" for textile colors

A significant advance in textile printing occurred with the advent of resin-bonded pigments. These new colors permitted striking patterns in brilliant shades with excellent fastness to sunlight, atmospheric fumes, washing and dry cleaning. But they still left something to be desired on crocking.

Finally a leading textile color manufacturer hit upon a simple solution – one based on CHEMIGUM LATEX. Combined with other materials and easily mixed into the base pigment colors at the printer's, CHEMIGUM LATEX helps form a protective coating against abnormal abrasion. The end result is greatly improved fastness to crocking plus added resistance to washing.

In addition to putting a liquid lock on pigment colors, CHEMIGUM LATEX has many other uses in the processing of textiles. Its high-binding strength, flexibility, light color and permanence plus ease of handling, compounding and applying are finding wide application in binders, coatings, finishes and adhesives of all types.

For full information, including the latest *Tech Book Bulletins*, on how CHEMIGUM LATEX can improve your product, just write to:

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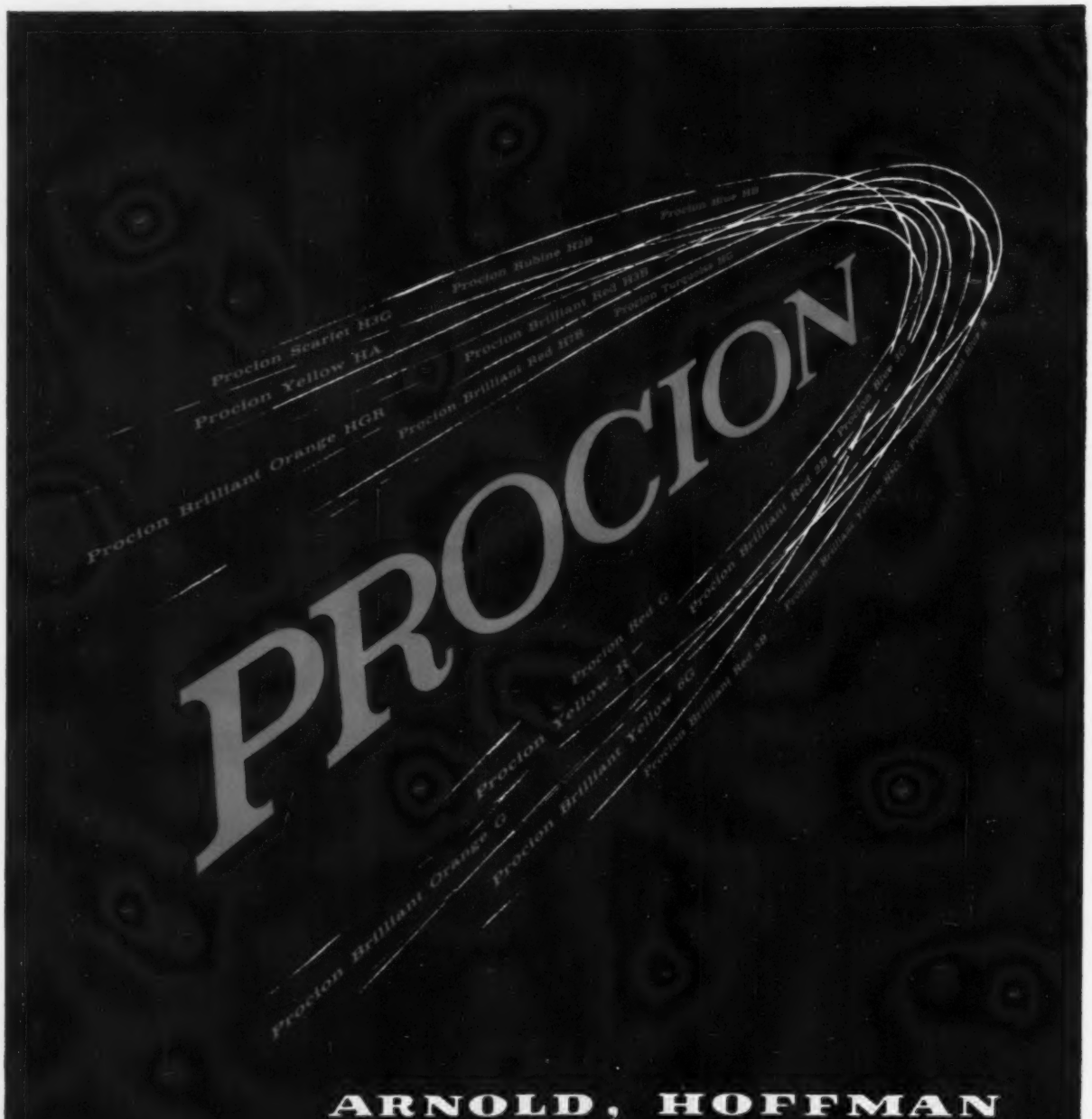


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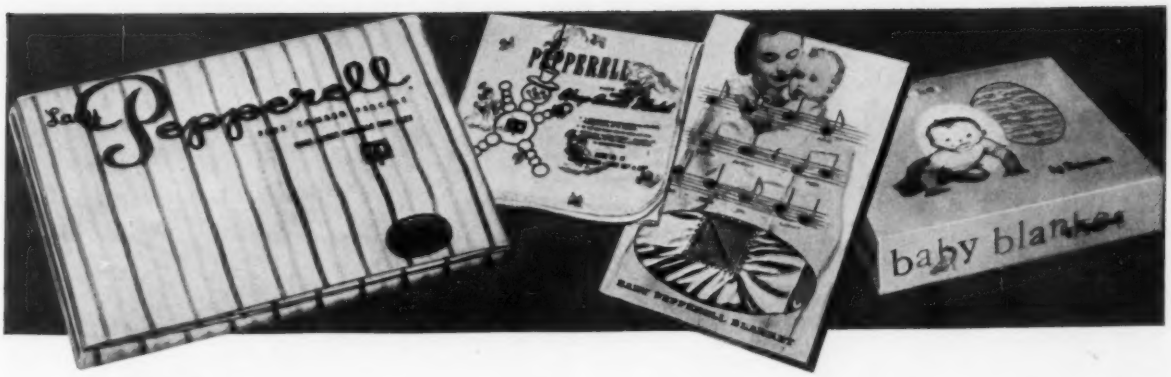


# Together . . . for over 50 years!

Pepperell Manufacturing Company in textiles; American Moistening Company in air conditioning . . . *both* are well-known not only to the trade, but to each other! For it was over 50 years ago that the first Amco installation was made in a Pepperell mill. Moreover, it's a business association which has continued active right up to the present.

Amco's developments in improved methods of air conditioning today include a full list of carefully engineered devices, as well as *all* types of systems. So whether *your* requirements are for humidification alone; or in combination with cooling, such as in a ductless evaporative cooling system; or for a unit dry-duct system; or central station air conditioning . . . Amco can offer you the *right* system, composed of quality components, and based on engineering backed by seventy years experience in textile air conditioning.

Call on Amco for reliable advice. Amco engineers will be glad to suggest a solution to any air conditioning problem you may have. There is absolutely no obligation.

Amco cooling and ventilating installation in spinning room of Pepperell plant.

Some departments in the mill use straight humidification with Amco atomizers.

Amco unit dry-duct system installed in weave room.

# AMCO

**AIR CONDITIONING SYSTEMS**

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BRANCHES:
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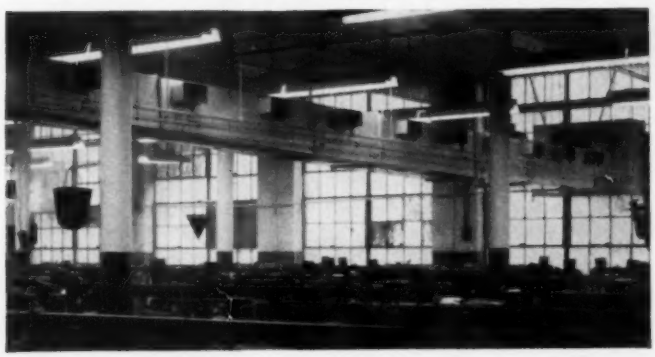
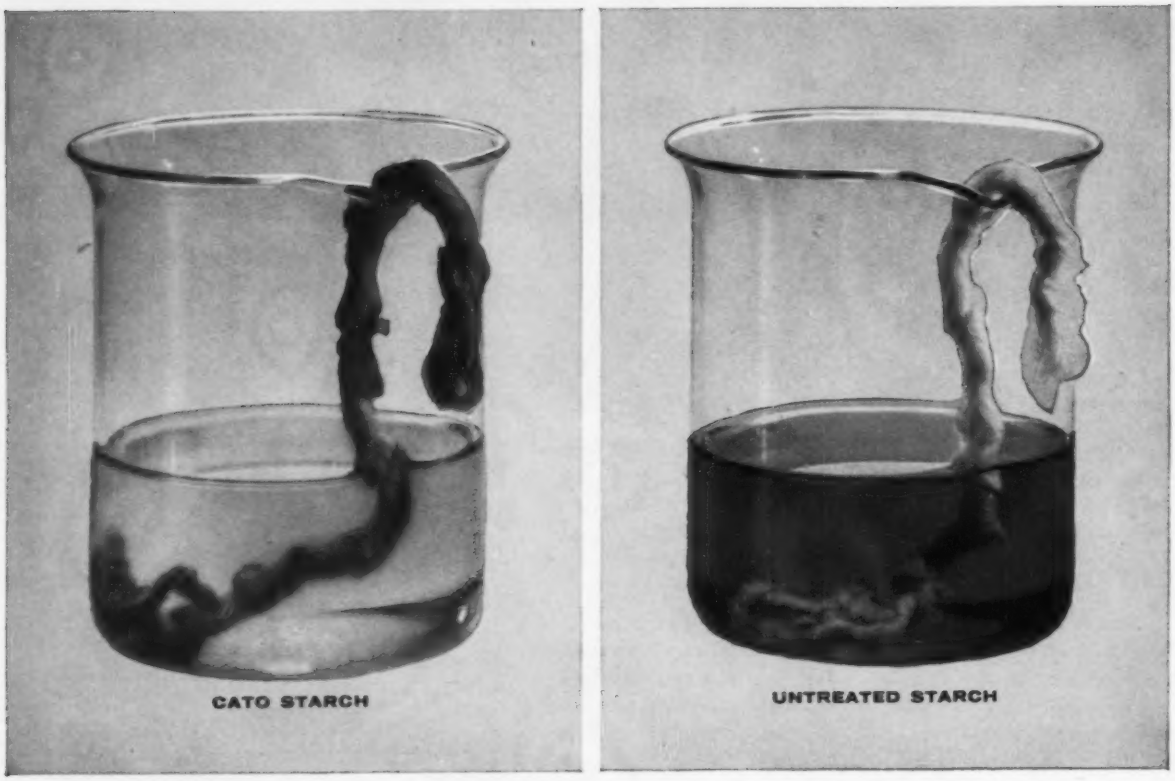


# CATO®

CATIONIC STARCH FOR WARP SIZING




## IODINE TEST proves greater starch affinity

A simple experiment. Take 100 ml. of solutions of Cato and corn starch at 0.005% concentration. To each add a 1 gram strand of any anionic yarn: cotton, wool, viscose, dacron, or others including blends. Boil for a few minutes. Cool and allow strands to drain as shown above. Now add drops of iodine to the strands and their respective solutions.

What happens?

The blue of the iodine test for starch proves the much greater affinity of Cato to anionic yarns—due to its patented cationic molecular structure. Showing how Cato promotes better adhesion, reduces shedding and improves weaving in warp sizing.

Interested? We'll be glad to supply trial quantities and have one of our textile specialists demonstrate in your plant.

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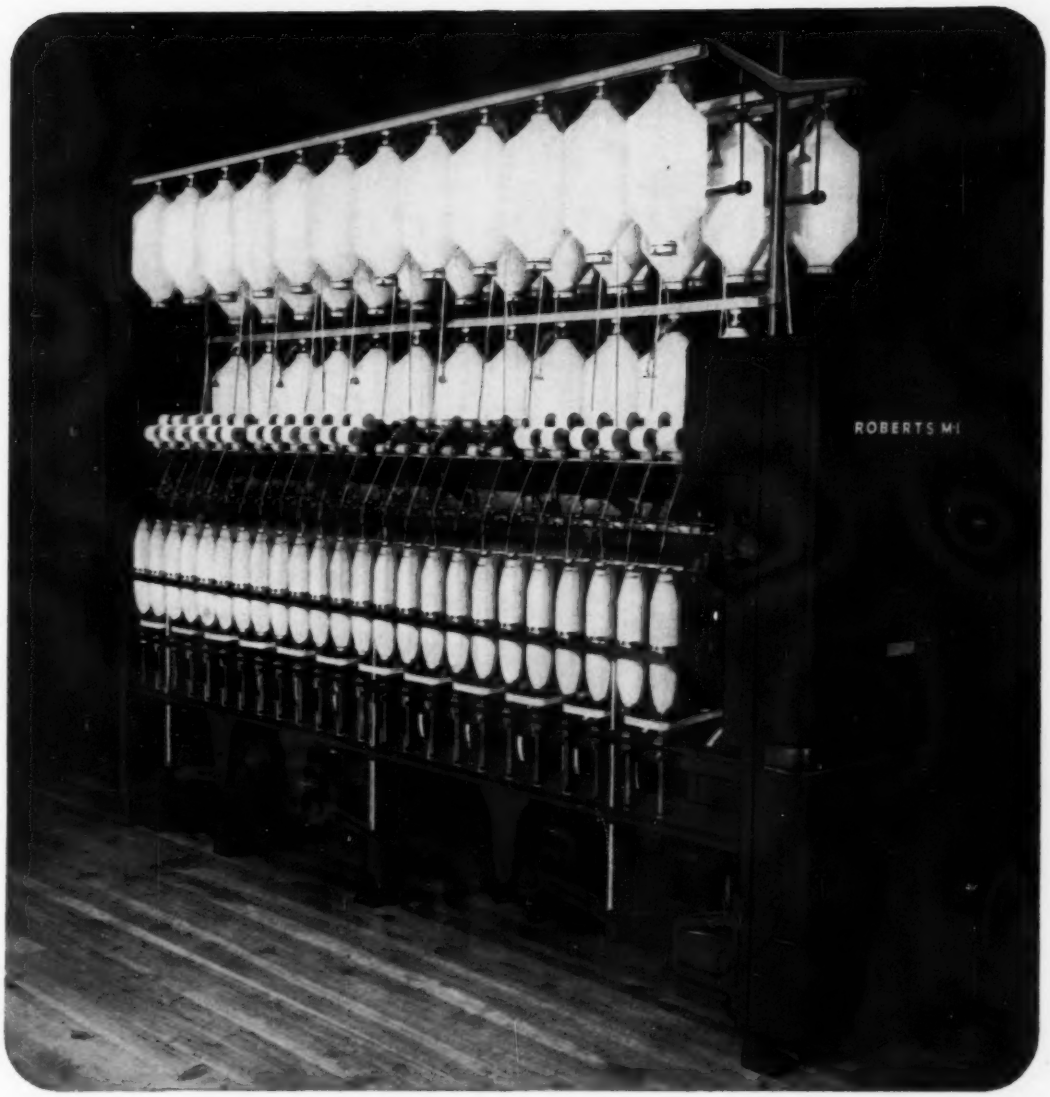



# ROBERTS SPINNING

## ALL NEW—ALL BALL BEARING ROBERTS M-1 SPINNING FRAME

### MODERN IN DESIGN

Into the rugged simplicity of the Roberts M-1 chassis has been built all the ball bearing features needed to provide the smooth operation and productivity for today's and tomorrow's production goals. Standard features include:

- FLEXIBILITY FOR COTTON AND SYNTHETICS
- BALL BEARING TOP ROLL SUSPENSION
- BALLOON CONTROL ARRANGEMENT
- BUILT-IN UnitVac SUCTION CLEANING
- EXTRA CAPACITY SPINDLES
- FULL BALL BEARING HEAD
- 45 DEGREE ROLL STANDS
- LATCH-TYPE BOBBIN HOLDER AEROCREEL
- STEEL BASE RAILS, ROLL BEAMS, RING RAILS
- ADJUSTABLE DRAFT CONSTANT, 500 to 3000
- TURNKEY ERECTION AND STARTUP

### PROVEN IN PERFORMANCE

New Roberts Spinning has been running in the mill since February 1956 and has proven itself not only most economical in initial cost but low in maintenance. One large user with more than 200 frames in continuous production reports that the new Roberts Spinning runs with higher front roll speeds, better yarn quality and substantially lower ends down than the several thousand frames of other makes in operation in their mills.

**ROBERTS COMPANY**

SANFORD, NORTH CAROLINA

# OBSOLESCENCE IS A VERY FRIGHTENING WORD...

In a day and age when jet aircraft and guided missiles become obsolete due to technological advances before they even leave the drawing board, obsolescence becomes a very frightening word.

It is, nonetheless, a word which has great significance for manufacturers in every field, PARTICULARLY TEXTILES.

Many new textile machines are so improved over machines now in use that a single new machine does the work of four or five old ones. In the buyer's market of today, mills that overlook the replacement of obsolete machinery run the risk of becoming so-called "marginal mills" . . . mills that are the first to fail when prices are low.

Look at your own mill—look for places where new machinery might increase production or do a better job—look for obsolescence!

**"DO IT RIGHT . . . THE FIRST TIME"**

## J. M. CLAYTON CO.

**CONTRACTING ELECTRICAL ENGINEERS**

*Serving The Textile Field For 52 Years*

78 SIMPSON ST., N.W. ATLANTA, GEORGIA

By J. C. C.

" . . . dies like a dog.....on! says he."

Frederick .....

Sherman's ..... to the Sea.

"Beware the Ides of .....!"

"Tramp, tramp, tramp, the boys are .....ing."

John Philip Sousa, the ..... King.

"Stars and Stripes Forever."

"Mad as a ..... hare."

"His truth is .....ing on."

► Any of our good readers who can fill in the above gaps will be able to figure out what month it is. And if you can figure out the year, too, you are lucky. Ole S&R looks at some of these here new fashions and then he goes out to see if the Maxwell is in the stall, because—after all—back in those good old days "chemise" was a naughty word and not a synonym for a flour sack. We had the flour sacks though and the Charleston and "black bottom." Hey, just looking at the papers brings back the old days, and we thought they were buried a long time ago.

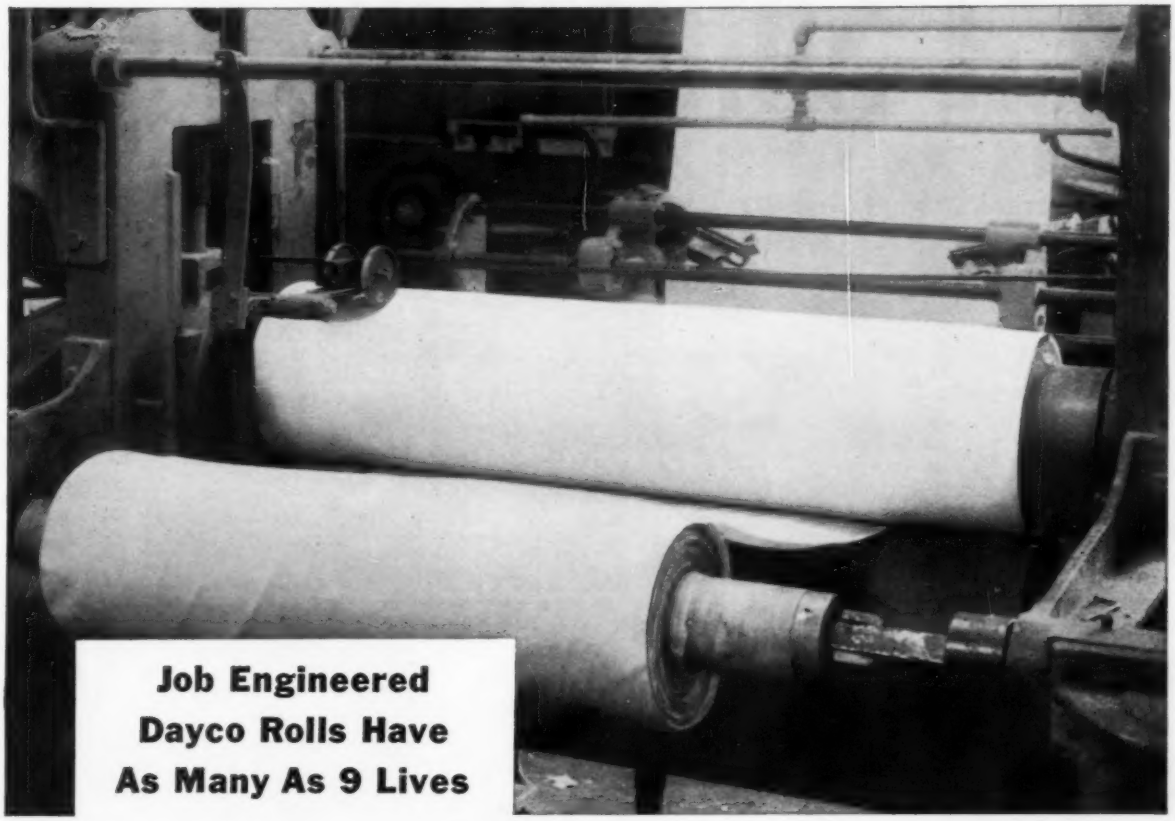
► There ought to be a better way to sell textiles than dig up the good and dead. Maybe we don't need to, after all. Folks haven't got money enough to buy new autos and motor boats for 1958, so they are running to get more clothes, sheets, pillow cases, blankets—soft goods, white goods, house furnishings. So, automobile textiles may suffer, but the industry as a whole picks up.

► Don't snicker. It could be. S&R had a dream: textile manufacturer tells newspaper reporter, "Business is good. Profits are nothing to brag about, but satisfactory—no complaints." Well, we can dream, can't we?

► In case you want extra copies of "Identification of Dyestuffs on Textiles" (Jan. '58), just let us know. With requests from **R. C. Geering.**

*(Continued on page 14)*

# DAYCO FINISHING ROLLS



**Job Engineered Dayco Rolls Have As Many As 9 Lives**

**What's the problem**...extreme heat, tremendous pressures, special chemicals? Or is it a combination of all three that seems to shorten the life of your finishing rolls?

**The answer** ... in any case ... is a Job Engineered Dayco Roll. For each Dayco Job Engineered Roll is designed to do just one job—the specific one you want it to do.

**Results are amazing.** By analyzing the roll requirements, then blending special compounds to create just the qualities needed, Dayton Engineers have extended the life of typical finishing rolls by 2, 3 and even 9 times.

**You save** on roll costs, on roll maintenance, on reduced downtime. And, your quality remains uniformly high because Dayco Rolls retain their "like new" condition for many months longer.

**For longer life and lower costs,** have your next finishing roll Job Engineered by Dayton. Write or wire the Dayton Roll Engineer at The Dayton Rubber Company, Holfast Division, 1486 Lakewood Avenue, S. E., Atlanta, Georgia.

D.R. 1958

**Dayton Rubber**

The DAYTON RUBBER CO., Dayton 1, Ohio
West Coast Distributor, Tillicum Rubber Co.
Lacey, Washington

**The Dayton Rubber Co., Holfast Division**
**1486 Lakewood Avenue, S. E., Atlanta, Georgia**

*Gentlemen: Please rush me "All the Money-Saving Facts about the New Dayco Finishing Roll."*

name_____

position_____ company_____

address_____

city_____ state_____

# 1958 SpinSaVac®

**Unit Collection Cabinet** (Type HI)

Compact, starter on side, full access to motor alley

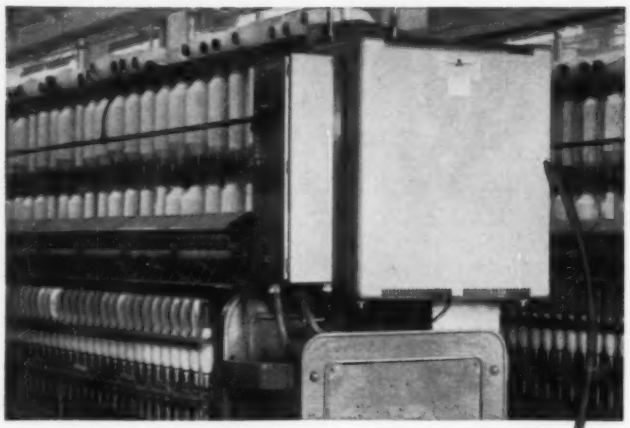
Flush surfaces

Large conical screen—fine mesh saran

Ample volume for collected lint

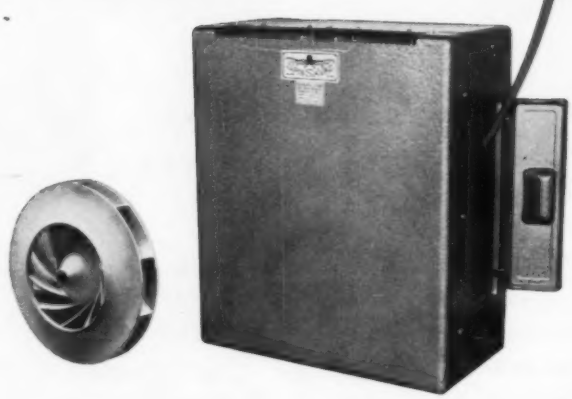
Large door for easy lint removal—air tight gasket locked without gluing

Air exhausted—up, down, or both—at low velocity, well diffused



**Central Collection** (alternate, not shown)

With provision for exhausting or returning room air



**Clearing Conduit**

Thick-walled, smooth, ethyl-cellulose

Strong, rigid, non-warping

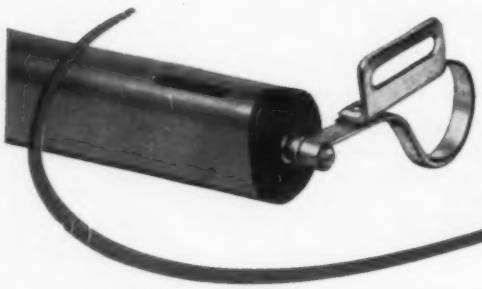
Spring mounted

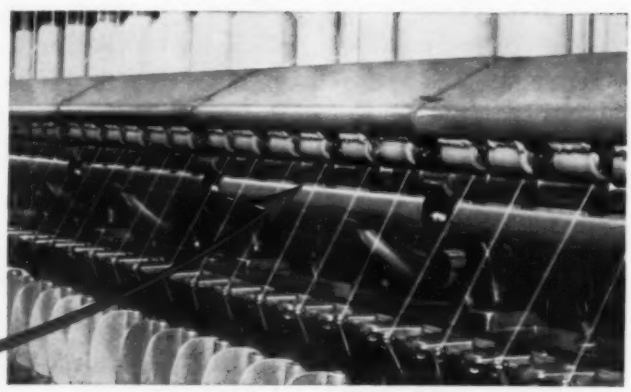
Pear-shaped for accurate positioning and easy piecing up

Conduits on frame interchangeable without adjustment

**Vacuum Impeller**

Double-shrouded air foil type, for greater efficiency and higher vacuum





Write or 'phone for further information about SpinSaVac and SpinSaCreel

## Parks-Cramer Company

FITCHBURG, MASS. CHARLOTTE, N. C. ATLANTA, GA.

408

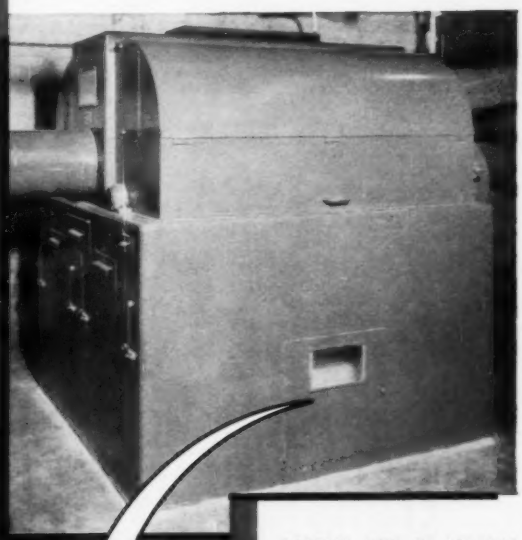
# Whitin AXI-FLO*

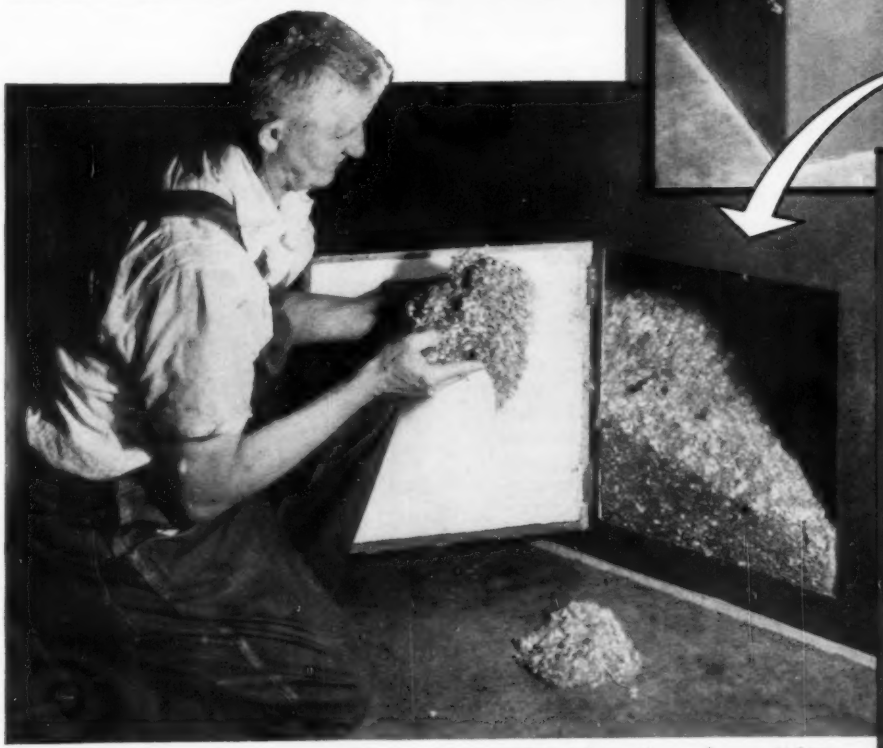
## *Only* unmatched cleaning performance could bring such speedy, world-wide acceptance

The gentle buffeting action of the new type Whitin Axi-Flo cleaner results in greater dirt, grass, dust, mote and trash removal; improved blending; better stock quality; much lower power and maintenance costs. It is especially effective when preceded by Axi-Feed openers on blending feeders. Its outstanding performance has resulted in remarkably rapid acceptance by leading mills all over the world.

**AXI-FLO PERFORMANCE DATA**

| Cotton Grade | Average percent Waste Removal | Cotton Grade | Average percent Waste Removal |
|---|---|---|---|
| GM | .5 - .6 | SLM | 1.2 - 1.8 |
| SM | .6 - 1.0 | LM | 1.6 - 2.5 |
| M | .7 - 1.6 | SGO - GO | 2.0 - 4.0 |





**PARTIAL LIST OF LEADING MILLS NOW USING AXI-FLO**

*United States*

Alexander Mills
Avondale Mills
Berkshire Hathaway
Bibb Mfg. Co.
Chicopee Mfg. Co.
Fieldcrest Mills
Franklin Process Co.
Gold-Tex Fabrics Corp.
Green River Mills
Greenwood Mills
Hadley-Peoples Mfg. Co.
Inman Mills
Jefferson Mills
Judson Mills
Kendall Co.
Lydia Cotton Mills
Mission Valley Mills
Monarch Mills
Pepperell Mfg. Co.
Reeves Bros.
Spartan Mills
Woodside Mills

*Canada*

Canadian Cotton Co. Ltd.
Hamilton Cotton Co. Ltd.
Wabasso Cotton Co. Ltd.

*More than 50 mill installations in:*

Mexico • Colombia • Belgium • France • Finland • Holland • Germany • Austria • Italy • Switzerland • India • Korea

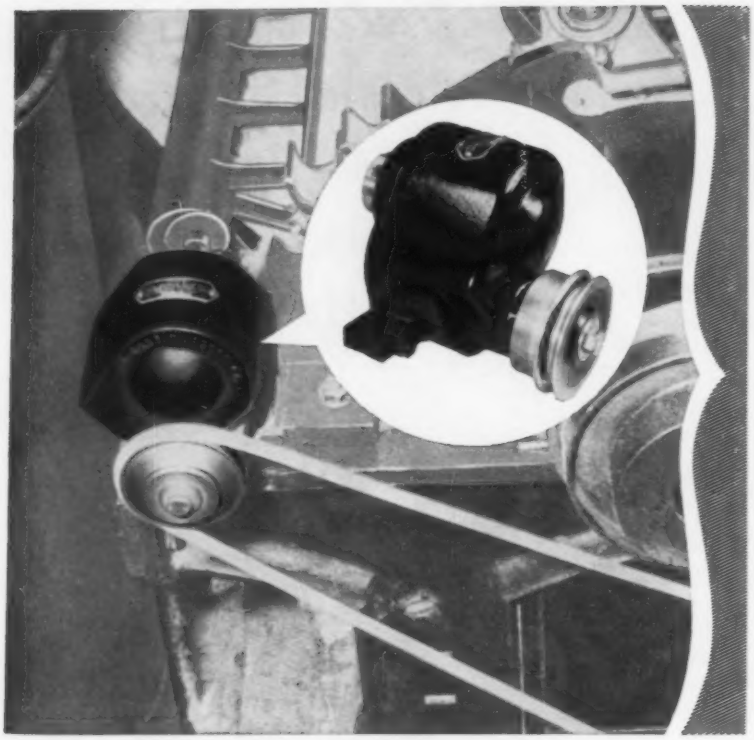
*TRADE MARK

*For complete information, ask your Whitin representative — or write direct to us.*

**Whitin MACHINE WORKS**

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.



# OUTSTANDING SUPERIORITY OF SOUTHERN STATES COMB BOXES PROVED IN NATION'S MILLS

More than 45,000 Southern States Comb Boxes have been placed in service during the past 10 years—equal to 50% of all the nation's cotton cards. Many mills have changed over 100%.

This overwhelming acceptance proves conclusively that mills can easily justify the small investment. Cardroom overseers quickly recognize the savings that result from their use: no oiling, cleaning or maintenance for the life of the unit; steady, even strokes to drive the comb with perfection; elimination of hot-running, leaky, rattling old-style boxes and their headaches.

Southern States Comb Boxes are furnished complete with an adjuster base for mounting on any make of cotton card. Bases are double tapped to permit rapid mounting on either right or left hand cards. Installation is quick and easy.

Let us show you with facts and figures how it has paid hundreds of mills to install Southern States ball-bearing, sealed-for-life, Comb Boxes; prove how much they will save you in one year. Write direct for a representative to call at your convenience.

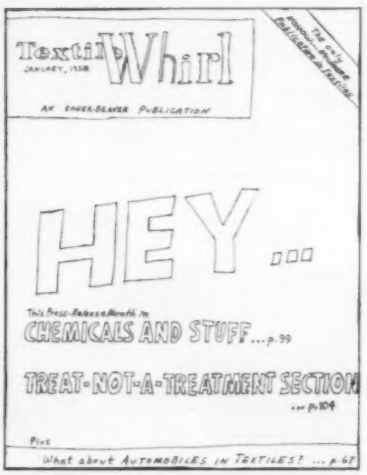
SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

## Shorts and Remnants

*(Continued from page 10)*

Dir. Res. Princeton Knitting Mills, Watertown, Conn.; Library, Ciba Co., Inc., N. Y.; **E. C. Hansen,** Sec., Antara Chemicals, N. Y.; **C. W. Saalfrank,** Sandoz, Inc., N. Y., etc., we ordered reprints of this fold-out.

► A copy of a very chic magazine came across our desk the other day. It's published somewhere in the North—New York as we recall—and has a rather fancy cover. Many of our readers don't see this magazine; here's roughly what it looked like:




We considered putting "Absolutely . . . Positively the World's Greatest Textile Magazine" on our cover, because that's what so many people tell us. But we're modest—and anyway, we wouldn't want to hurt the feelings of *Melliand Textilberichte.*

So, we'll just keep on bringing you the "how" and the "why," as we've done from this same stand for over sixty years. We've never been the "only," but we'll try to continue as the best.

► Good TI advertiser M. W. Jenkins' Sons, Inc., has a folder on "Cotton's Romantic History" which mentions Karpassa, the Indian name for cotton, and references to "White Gold" on trees back about 490 B.C. Now, actually, cotton is earlier than recorded history. It was grown and woven as far back as 3,000 B.C. in ancient China, Egypt, and India. We'll bet they stapled it same as today—between thumbs and forefingers. Wonder if they worried about getting the trash out.

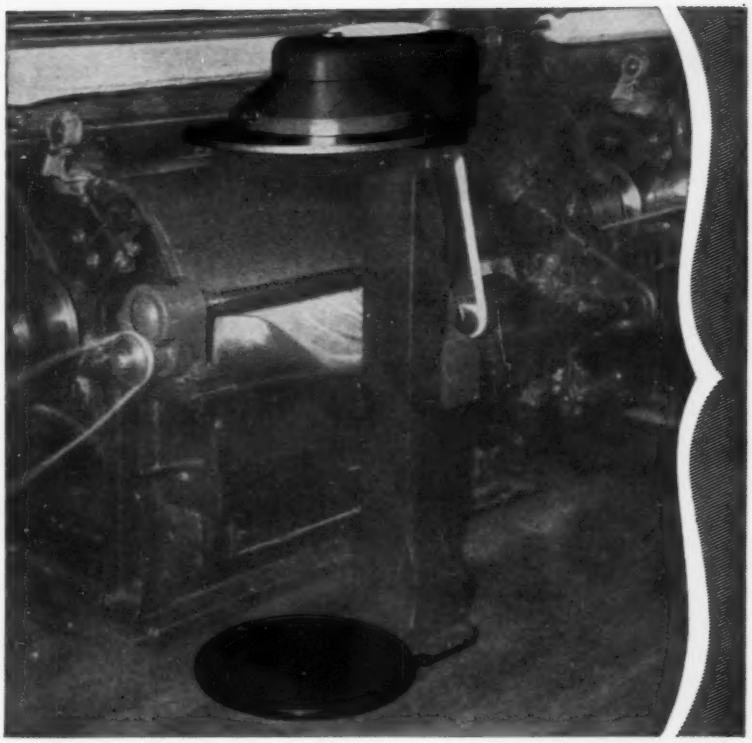
► In case any of you have forgotten, the 20th Southern Textile Exposition is scheduled for Greenville, S. C., Oct. 6-10. With no Knitting Show and no AATCC Show, it is the only one for 1958. To the two good advertisers who have written for help in getting display space, this is all up to Miss **Bertha Green** who has handled it for these many years. They are building another annex, and the show will be bigger and better than ever. We'll see you in Greenville.

► **Gilbert P. Merrill,** Lowell, Mass., Clemson (S. C.) College Library, and the French Commercial Counselor in N. Y. wrote for extra copies of TI's 1957 Index of Articles (Jan. '58), and **Robert Ellsworth,** Fiber Div. National Aniline, asked if we have a binder for TI file copies. **R. E. Semmler,** Mgr. Fabric Dev. Dept. Eastman Chem. Products, wrote for four copies of "Man-Made Fibers" (Sept. '57), and **Frank C. Hopkins,** Tex. Div. U. S. Rubber Co., N. Y., wrote to thank us for extra copies of this same reprint.

► Regardless of man-made or natural fibers, it looks to ole S&R as if this here Vinalon is a plastic (and not a textile) for seat covers; but Southbridge Plastics sent us a couple of pics of Miss Vinalon of 1957. So here you have her—and that's a

1903 Oldsmobile with the pretty girl sitting in it.

► Also, with all the fanfare about imported textiles, somebody sure goofed. A news item tells us that a supply of new table cloths for the U. S. Senate restaurant has just arrived from West Germany. The news item says that somebody is going to have some explaining to do when Senator **Herman Talmadge** (Ga.) sees it.

# SOUTHERN STATES' NEW COILER HEAD AND BASE MAKE CONVERSION TO LARGER CANS SELF-PAYING

For mills seeking a low initial cost for conversion to larger cans, Southern States' new conversion unit is the answer. It consists of: 1) the identical, vastly improved ball bearing head used on the new complete coiler; 2) an adapter spacer and upright shaft for increased coiler height necessary to accommodate 36″ or 42″ cans; and 3) a new, standard-type base assembly with a conventional gear system for driving the can table. All necessary components are furnished in kit form for quick installation, *using your existing stands.*

Southern States' Conversion Units are designed for use on any make cotton card and for accommodating cans of larger diameter.

Case histories of mills prove conclusively that Southern States' conversions are so economical they soon pay for themselves. For a small initial investment, you enjoy all the advantages of more efficient handling; lower operating costs; improved quality; simplified oiling; ease of maintenance; smaller parts inventory; and years of satisfactory service.

Get full facts from your Southern States representative or write direct to us for Technical Bulletin No. 203-a.

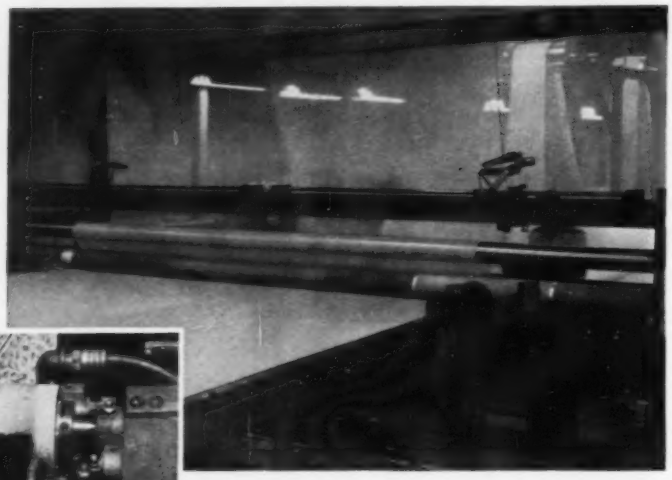
SS
SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

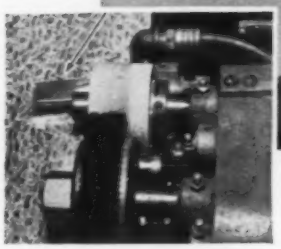



*For further information use Handy Return Card, Page 171*

# Askania Regulator Company NEWS

**AUTOMATIC CLOTH GUIDES FOR TENTER FRAMES, TENTER BATCHERS, LABEL MARKERS, TUBERS AND EXAMINERS**





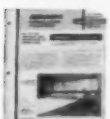
*Askania Sensing Nozzle Maintaining Tenter Pin Position in relation to Lace Selvage in Tenter Dryer at American Fabrics Co., Bridgeport, Conn.*

## Increased Efficiency With New High-Speed Kenyon Tenter Dryer and Askania Cloth Guides

The American Fabrics Company is extremely proud of its new finishing plant equipped with some of the most advanced processing machinery in the trade. This includes a new Kenyon Tenter Frame and Dryer—a high-speed pin type with a gas-fired drying system. It handles nets and laces up to 230 inches wide, and it features a unique, electronically synchronized, independent feeding system that presents the web to the main frame under a precisely maintained tension.

This precision is further carried out by the Askania Cloth Guide Control which instantly senses selvage variations and positions the rail so that extremely accurate automatic pinning results. The sensing unit operates solely from very low pressure air—*nothing ever touches the fabric.* Because of the speed, accuracy and flexibility of the hydraulic edge control unit, considerable savings in fabric are made.

### *Askania Cloth Guide Control Bulletin*



Bulletin No. 22.1 provides full information on Askania Cloth Guide Control Systems plus application diagrams of the controls in use. The systems can be installed by any competent mechanic and they are adaptable to any material from the flimsiest lace to the heaviest woolens. WRITE FOR YOUR BULLETIN TODAY to Askania Regulator Company, 260 E. Ontario Street, Chicago 11, Illinois.

**ASKANIA REGULATOR COMPANY**
"CONTROLS FOR INDUSTRY"
Hydraulic, Electrohydraulic and Electronic Controls—
Valve Actuators and Cylinders—General System Engineering

A SUBSIDIARY OF
GENERAL PRECISION EQUIPMENT CORPORATION

GPE


## Shorts and Remnants

**Wants Pile Fabrics Article**

"Would you please send us a February 1957 Edition of your magazine, as we have misplaced ours and are most interested in the article 'Pile Fabric Manufacturers Must Catch Up,' by G. E. Herrnstadt."

R. L. MacFADYEN
Joan Corp.
Lowell, Mass.

**Improve Drawing Sliver**

"We would be greatly obliged if you could send us two reprints of 'Improved Drawing Sliver Uniformity' [Nov. '57]."

W. G. MACMILLAN
Indian Jute Mills Assoc. Res. Inst.
Calcutta, India

**From Ladies' Hose to Panties**

"Some time ago, perhaps a year or so, you had a very interesting article on how a full fashioned hosiery mill changed over to a manufacturer of ladies panties [Oct. '54]. Can you send us a copy of this story? . . . "

RICHARD BAMBACH
Bambach & Roth Hosiery Mills
Philadelphia, Pa.

**New Textile Fibers (1953)**

"We wish to thank you for the . . . reprint entitled 'New Textile Fibers Created' [Oct. '53] . . . "

BRUCE A. RANDALL
Columbia Narrow Fabric Co.
Shannock, R. I.

► Our best wishes for retirement go to friend **Jack Meyers,** Ton-Tex Corp., who is saying goodbye to his

textile friends to move to Florida. Jack (center) is talking to **Tom Lombardi** (left), his successor at Ton-Tex, and **Maynard Durham,** former TI Bus. Mgr., also retired.

*(Continued on page 22)*

# P-K Pre-Krete®-lined storage water heaters

## *give you added years of rust-free service*

Why buy a plain steel storage water heater when you can have a P-K Pre-Krete-lined Heater with twice the life at only slightly higher first cost?

P-K, and P-K alone, gives you thermal design with a 75-year record of heat transfer experience, *plus* the corrosion protection of a non-staining, non-toxic, inert, special formula Pre-Krete lining that doubles the life of the heater—an exclusive P-K advantage.

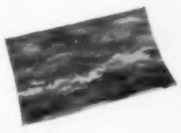
Pre-Krete is a pre-blended, low soluble, hydraulic cement with special additives. It is unaffected by extreme temperature changes and will not shrink, flake, or crack. If lining repairs are ever needed, one man can make them easily with minimum downtime.

For complete details, write for Catalog 19 on P-K Storage Water Heaters. For information on lining your existing plain steel vessels with Pre-Krete, ask for Bulletin 1012. The Patterson-Kelley Co., Inc., 2803 Wilson St., East Stroudsburg, Penna.

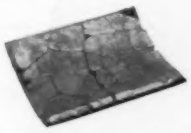
IN

**Patterson Kelley**

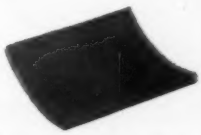
Storage Water Heaters • Instantaneous Heaters
Converters • Freon Chillers and Condensers



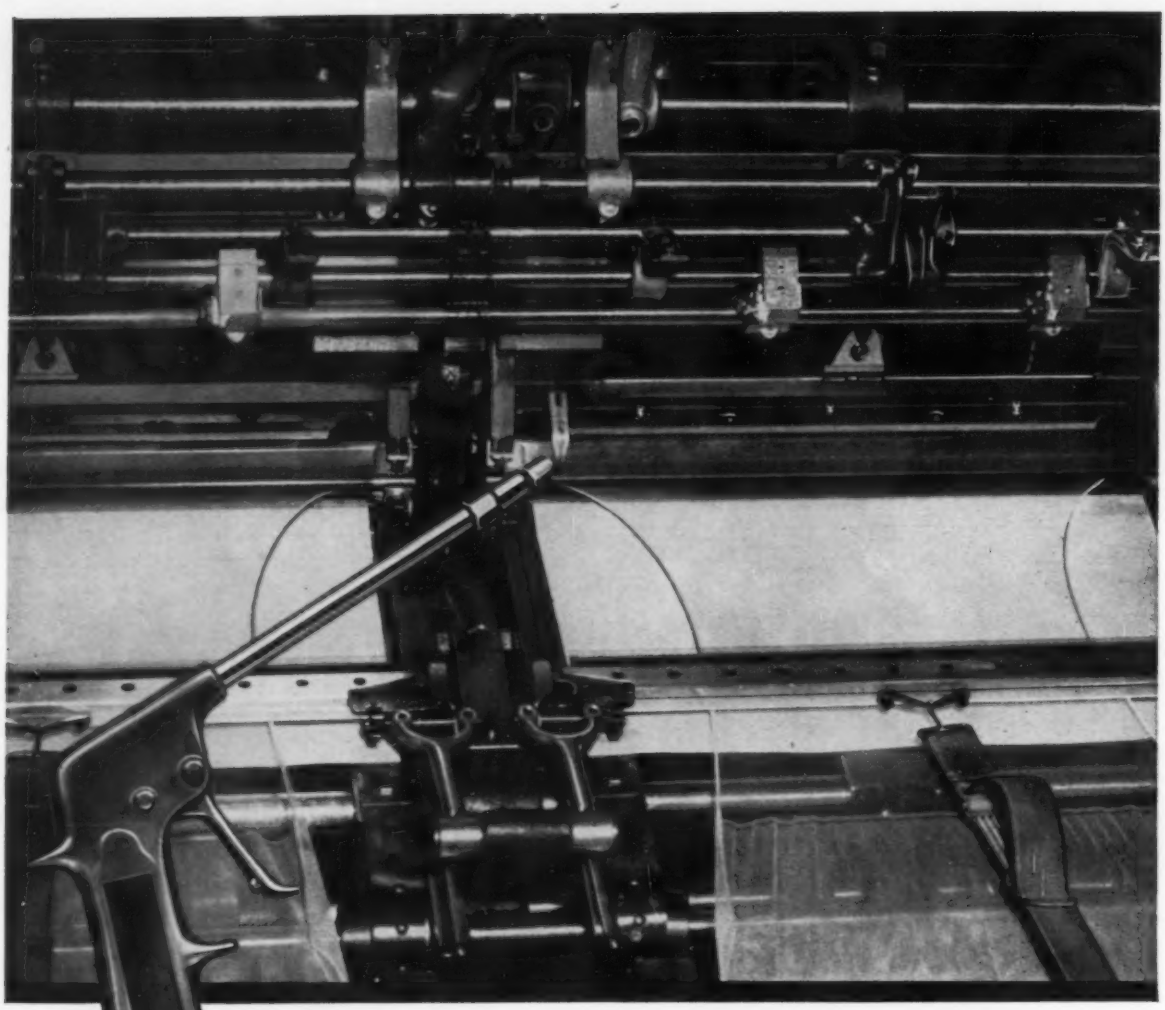
**Plain steel plate will corrode even under normal water conditions.**



**Ordinary cement linings tend to flake, crack and shrink, resulting in high maintenance costs.**



**Pre-Krete-lined plate is still in perfect condition after exhaustive testing.**



# Keeps Needles Clean!

Keep rust and size deposits out of your knitting machines! Switch to Sinclair CRYSTOIL. This superior needle oil is specially formulated for knitting operations: It keeps needles free from rust, and not only resists encrustation, but *will actually remove size or crust build-up.* Fewer applications of oil are needed between sets. Moreover, the light color pays an extra bonus in finishing operations . . . scouring is minimized when CRYSTOIL has been used!

Look into the advantages of Sinclair CRYSTOIL or CRYSTOIL LIGHT (for the finer gauge machines). Call your local Sinclair Representative or write Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N. Y. *There's no obligation.*

**SINCLAIR**

## CRYSTOIL NEEDLE OILS

# MOYNOS®

## even pump non-pourable pastes!

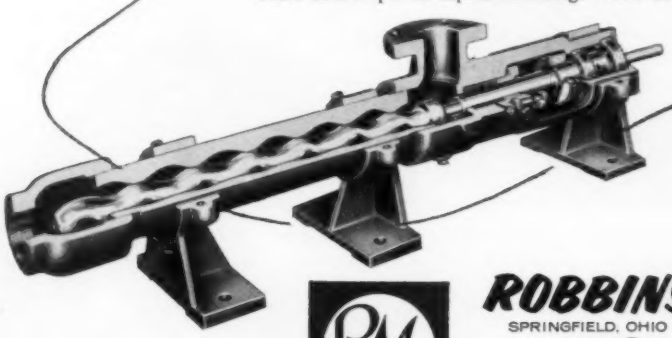
*. . . and move corrosives without excessive wear!*

Moynos can pump any textile liquid that can be forced through a pipe, even if they're highly viscous or corrosive.

A screw-like rotor revolving in a double threaded stator forms progressing cavities which move all fluids smoothly through the pump, including thickeners or starch size. Corrosive liquids like acid solutions, dye and chlorine do not cause internal wear, because the rotor and stator can be made of special resistant materials. Moyno is the only pump that can satisfactorily handle caustic alkali solutions without causing foaming or aerating.

Many textile mills have drastically cut downtime on mercerizing and sizing machines by installing Moynos to replace rotary pumps which wear quickly and lose capacity and suction characteristics.

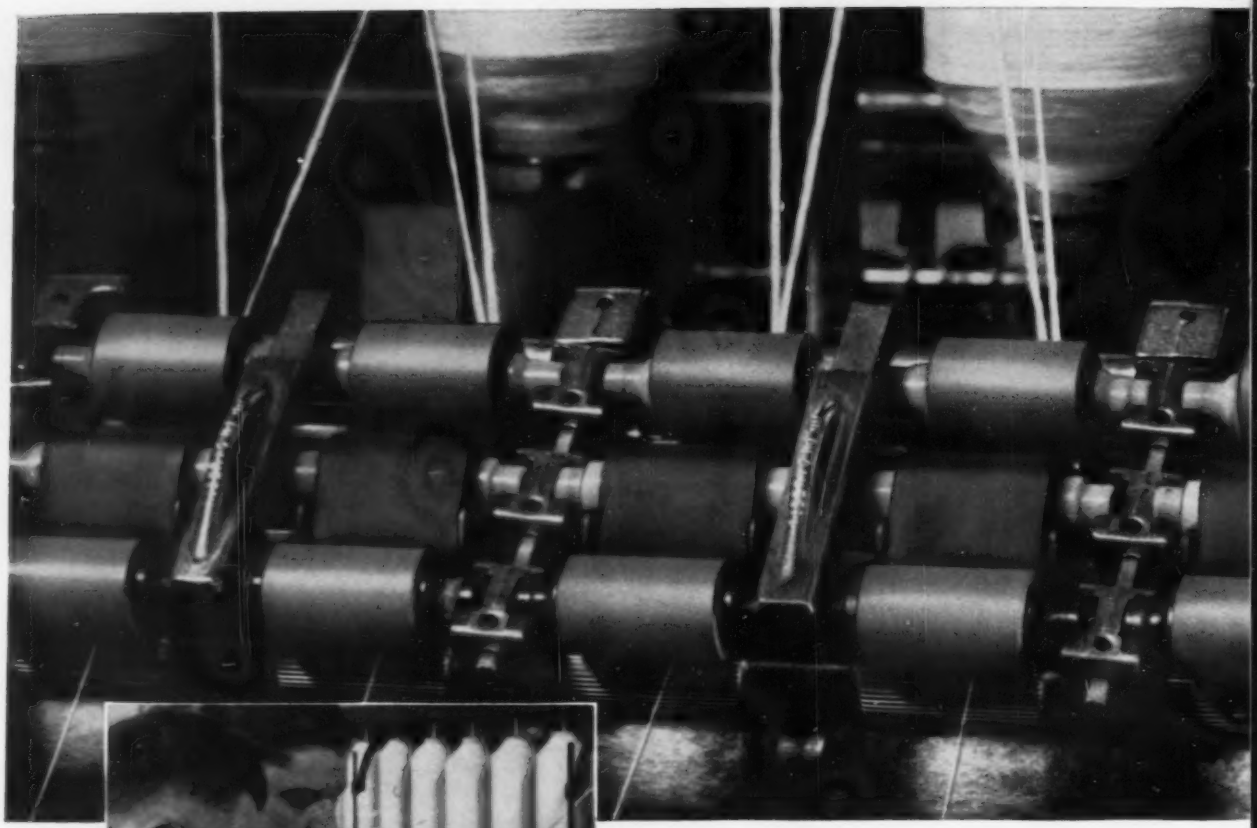
Moynos are available in capacities up to 500 gpm; pressures up to 1000 psi. No doubt there are many steps in your processing flowsheet where Moynos can cut costs and improve liquid handling. Write for Bulletin 30TI.



R&M®

**ROBBINS & MYERS, INC.**

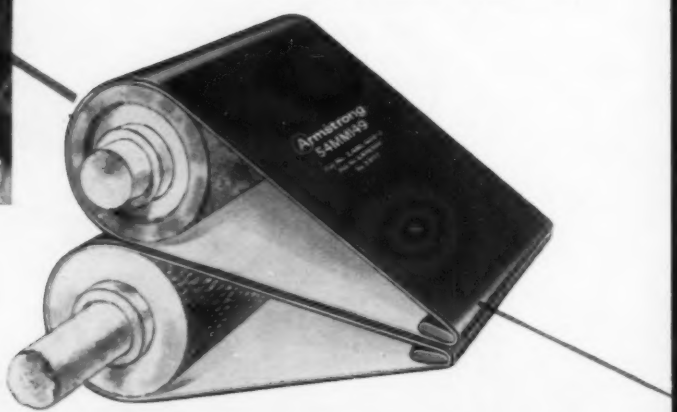
SPRINGFIELD, OHIO — BRANTFORD, ONTARIO

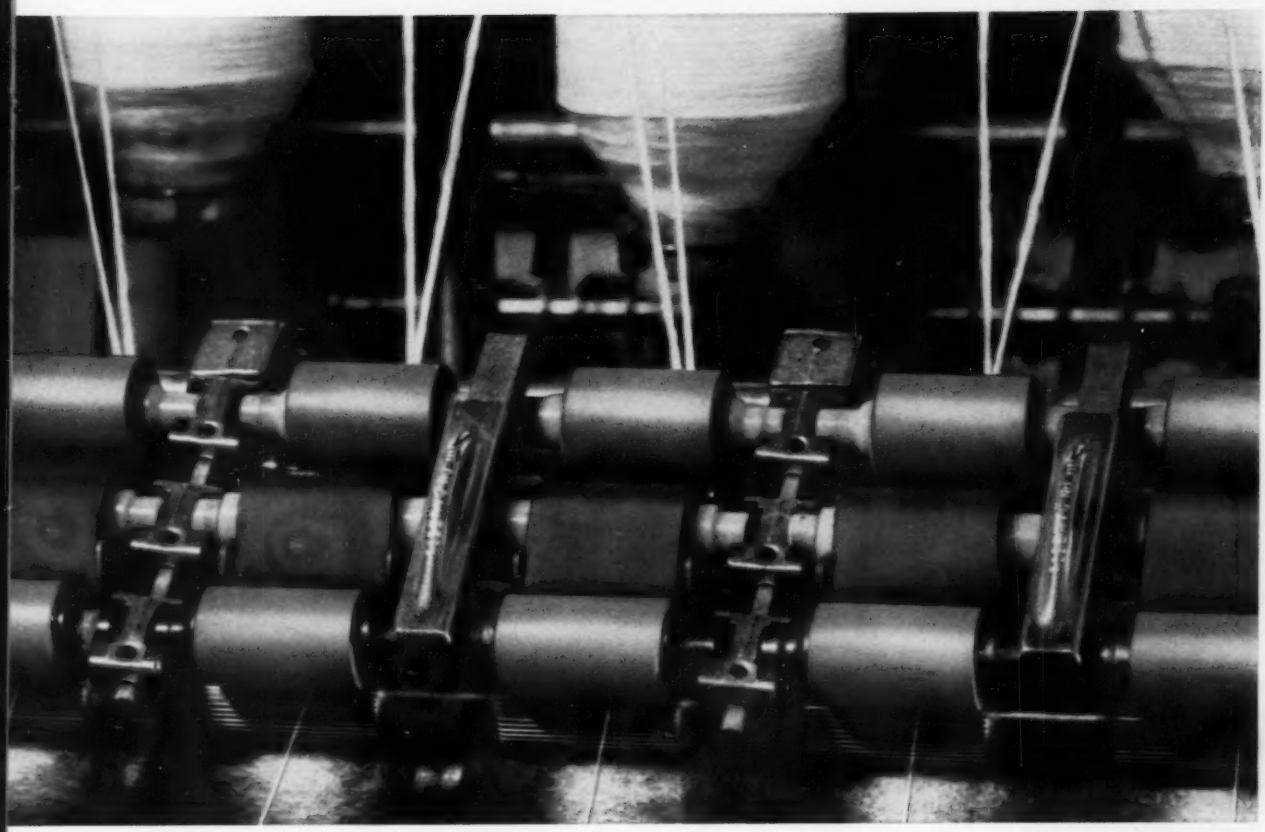


# How Armstrong

Smooth-running Armstrong Accotex Aprons help keep production at peak quality. Constant control of the fibers results in fewer irregularities and greater yarn strength.

For double-apron spinning, use the black-and-white Accotex NO-7075 Apron. No matter what type of equipment you're using, there's an Accotex Apron specifically engineered for your needs.





# Accotex Aprons help produce stronger, more uniform yarn

To get the good yarn control so essential to top-quality spinning, hundreds of mills have standardized on Armstrong Accotex Aprons.

These aprons are precision made to provide smooth drafting action on modern, high-draft frames. In the Accotex NO-7075 black-and-white apron, for example, there are different synthetic rubber compounds on each surface.

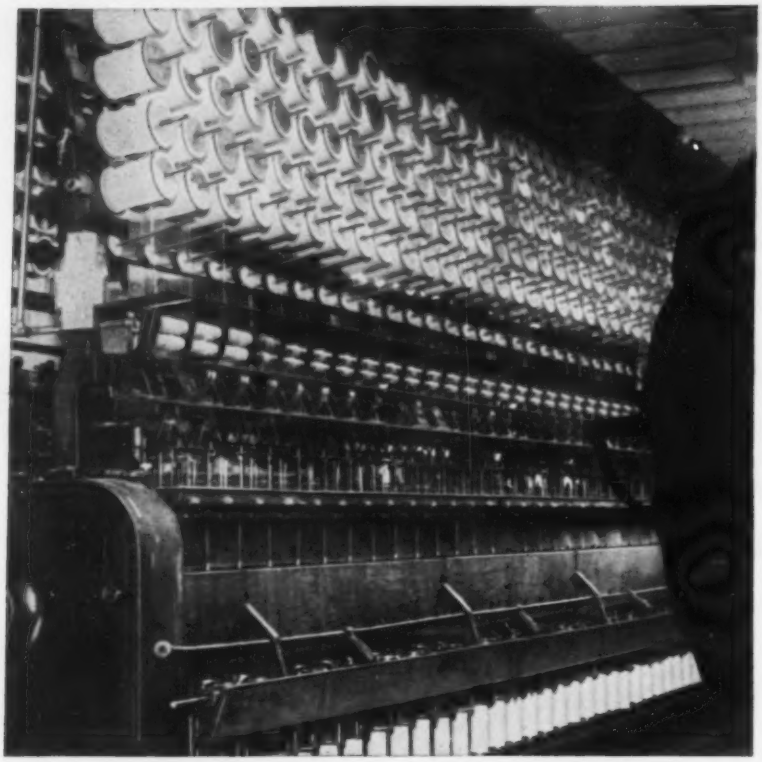
The black outer surface has sufficient friction to keep the top apron spinning smoothly without slipping. It also resists abrasion and tearing, to give long trouble-free service even on a three-shift operation.

The inner surface has a relatively low coefficient of friction to avoid buckling and jamming at the pin. At the same time, it has enough friction to grip the drive roll firmly for smooth, even drafting.

The patented straight-line cord interliner between these two rubber surfaces keeps the apron running smooth and flat, won't let it stretch or curl.

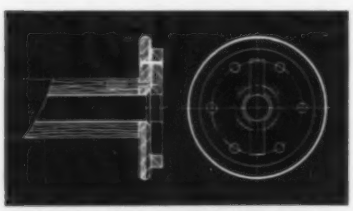
For more information on Accotex Aprons or other Armstrong textile supplies, write Armstrong Cork Company, 6403 Ivy Street, Lancaster, Pennsylvania.

**Armstrong ACCOTEX APRONS** ... *used wherever performance counts*



## For over 45 years, these same Lestershire bobbins have seen continuous use at The Linen Thread Co., Inc.!

Many of the Lestershire bobbins shown here have been in continuous service since 1913! They're still on the job at The Linen Thread Company, Inc., Patterson, N. J. after thousands of hours of punishing operation. Mr. Ronald Vaughan, Assistant Plant Manager, states: "Our bobbins get rough handling. They're thrown into boxes, dropped on the floor. We find the Lestershire Bobbin has the strength, durability and accuracy we require in our plant."



**EXCLUSIVE ANCHOR SCREW CONSTRUCTION**

Lestershire's unique and patented method of joining bobbin heads permanently to maple barrels is a major reason why Lestershire Bobbins take year-in and year-out use and abuse without failure.

**BOBBIN SPECIALISTS TO THE INDUSTRY**

Custom produced to fit your precise needs, Lestershire bobbins are furnished in an extensive range of sizes, styles, and construction types.

### Bobbins to meet every problem

Whether your bobbin problems involve larger "packages," higher rotating speeds, or the crushing action of tenacious yarns you'll find Lestershire has the engineering skills, tested facilities and depth of experience to produce the bobbin you want . . . when you want it.

**REQUEST THIS CATALOG!**

For the most up-to-date catalog on Bobbin Construction in the industry, write direct for Catalog W-5.

*LESTERSHIRE SPOOL DIVISION*

**NATIONAL VULCANIZED FIBRE CO.**

WILMINGTON 99, DELAWARE

*In Canada:*

NATIONAL FIBRE COMPANY OF CANADA, LTD., Toronto 3, Ontario


## Shorts and Remnants

*(Continued from page 16)*

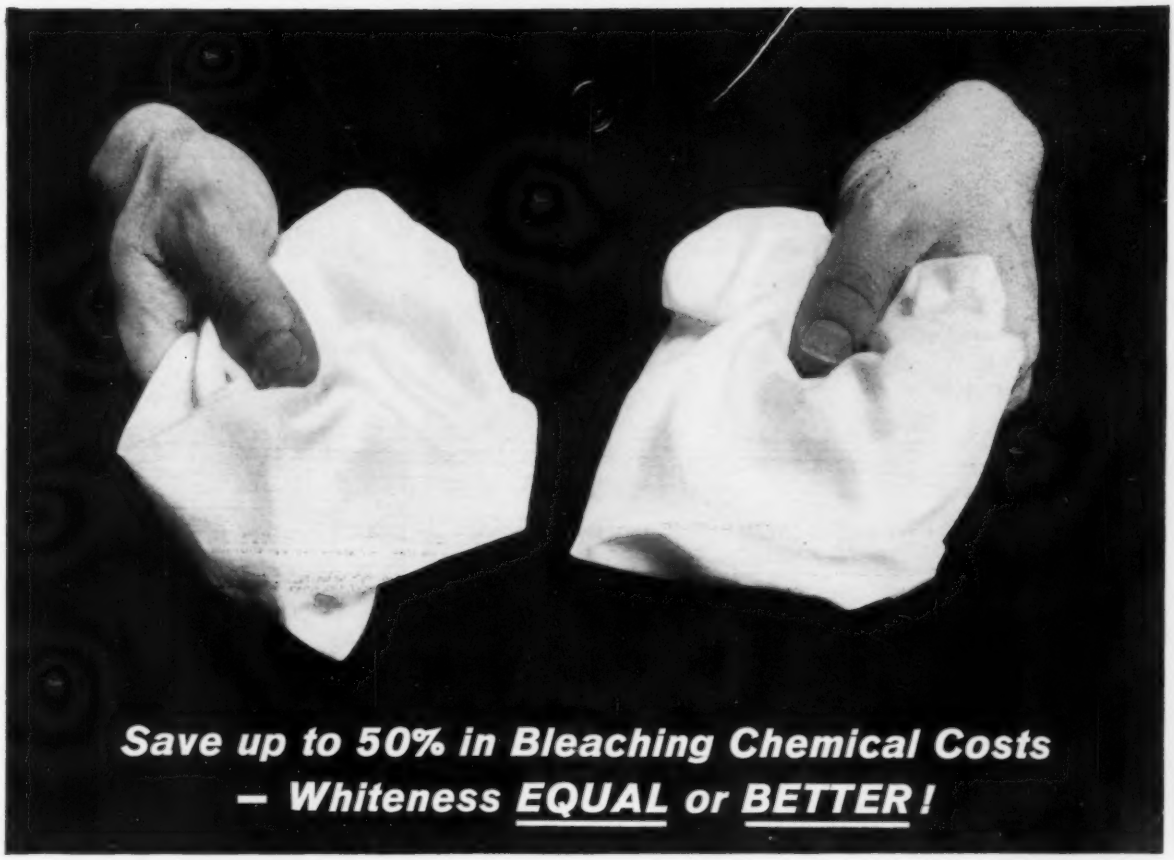
► **Otto Renner,** Dir. A. J. Renner, S.A. Porto Alegre Rio Grande de Sul, Brazil, read about epoxy resins in TI and wants to obtain these for crease-resistant finish on linens. **Jean F. Morelle,** Star Carbonizing Co., Woonsocket, R. I., wants to know who makes the "Acumeter," and that makes it easy; he can just pick up the phone and call Holdsworth Mfg. Co. over in Pawtucket. **D. B. Mikesell,** Pres. Amer. Brattice Cloth Corp., Warsaw, Ind., wants more on Marshall & Williams Corp. Jan. ad; **Elliott Gutenberg,** Angus Knitting Mills, Inc., Bronx, N. Y., wants same on Veeder-Root, Inc., Jan. inside back cover; **Jules S. Glick,** Chem. Liberty Fabrics, N. Y., almost stumped us on inquiry on the "Microfix" binders #1, #2, and #3, but that was Ciba Co., Inc., Nov. front cover. **C. M. Clay,** V.P. John P. King Mfg. Co., Augusta, Ga, writes for more on Patterson-Kelley Co., Inc., heat exchanger ad (Dec. '57).

**Lowell Baron** of Baron Woolen Mills, Brigham City, Utah, writes for help in securing and applying resins to woolen blankets for shrinkage control. "It is very seldom that salesmen visit us due to the many miles from the nearest manufacturing centers . . . " writes Mr. Baron. So, if you are getting besieged by salesmen, you can always move to Brigham City, Utah.

► So just write and ask for it if you don't see it in our reading or ad pages. Don't ask about left handed wrenches or sky hooks though. Does the machine shop still send the new boy all over the plant looking for these or does that date S&R? Just like the story of the two men ordering breakfast—one asking for ham and scrambled eggs, and the other saying "The same, but eliminate the eggs." That was too much for the kitchen, and the waiter came back shortly asking if the second man would just as soon have his eggs scrambled too as the "liminator was done broke."

► Some folks are just never satisfied, like the fellow who also ordered two eggs for breakfast—one fried and one scrambled—and then sent the order back to the kitchen, saying they scrambled the wrong egg.

► That's all the old yolks for this month, folks. We'll see you later.




# ...with the SOLVAY Activated Hydrogen Peroxide Bleaching Process for Cotton

By using the SOLVAY Activated Hydrogen Peroxide Bleaching Process for Cotton, you can save up to 50% in bleaching chemical costs and, at the same time, gain a number of measurable advantages.

You get whiteness that equals or surpasses the results you're now getting. You increase purity, reduce color reversion tendencies and ash and metals content, and raise absorbency rates—even with moderately hard water —and without harm to the cloth.

This method has been thoroughly tested and is now in successful use in full-scale commercial operation. Application for a patent covering the SOLVAY Activated Hydrogen Peroxide Bleaching Process has been filed. The process is available to bleachers under a royalty-free license.

***Write now! Full details of process, techniques, results!***

Sodium Nitrite • Calcium Chloride • Chlorine
Caustic Soda • Caustic Potash • Chloroform
Potassium Carbonate • Sodium Bicarbonate • Vinyl
Chloride • Methyl Chloride • Ammonium Chloride
Methylene Chloride • Monochlorobenzene • Soda Ash
Para-dichlorobenzene • Ortho-dichlorobenzene • Carbon
Tetrachloride • Ammonium Bicarbonate • Snowflake®
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Hydrogen Peroxide • Mutual Chromium Chemicals

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ALLIED CHEMICAL & DYE CORPORATION
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☐ Please send me without cost your brochure, "SOLVAY Activated Hydrogen Peroxide Bleaching Process for Cotton."

☐ Have one of your representatives call to discuss it.

Name_____

Position_____

Company_____

Phone_____

Address_____

City_____ Zone____ State_____

Tennant-maintained floor in carding department of a large southern mill

# Only the TENNANT System can keep your floors this clean

Chances are that your floors *can* look like this the year around . . . *if* you use the TENNANT SYSTEM.

*And your maintenance costs will usually run less per year!*

**Floor seals last longer.** Newly-developed TENNANT Floor Seals, specially designed for textile mills, last longer than any comparable materials we know of. This ends need for frequent recoating and reduces annual maintenance costs.

**Makes floors easier to clean.** The exclusive TENNANT process *actually increases dirt-resistance of the average textile mill floor by 300%*. Soilage wipes off easily . . . in a fraction of the usual time.

**Keeps floors bright.** The TENNANT SYSTEM's exclusive cleaning techniques make it easy to keep your floor attractive month-after-month . . . even under heavy traffic.

You'll also enjoy added benefits in improved safety and employee efficiency when your mill is a bright, pleasant place to work in.

Your TENNANT Man is a qualified floor expert, ready to give free estimate of savings possible in *your* mill. For full information, write G. H. Tennant Co., 735C N. Lilac Drive, Minneapolis 22, Minn.

TENNANT

*The Textile Industry's Most Widely Used*

**FLOOR MAINTENANCE SYSTEM**

Methods

Machines

Materials

FLOOR MAINTENANCE SYSTEMS


# Personal NOTES

ABOUT MEN YOU KNOW

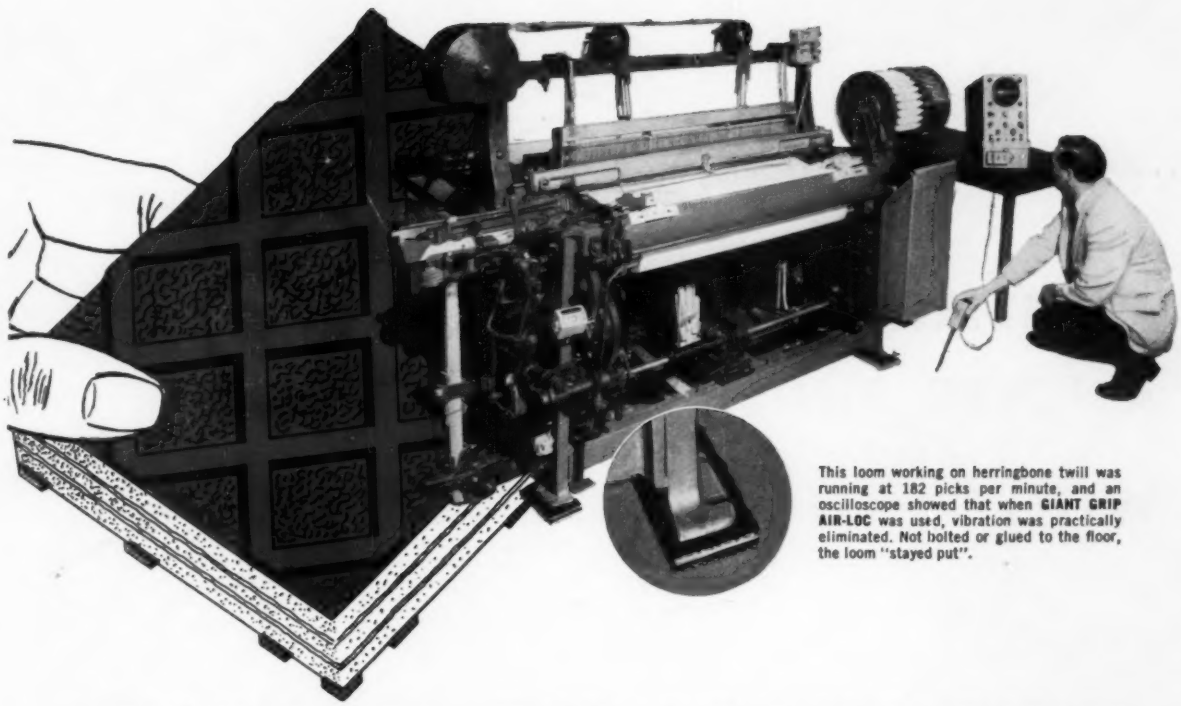
At Callaway Mills Co., LaGrange, Ga., **F. Murry Williamson** has joined the textile laboratory of the research and development division as textile technologist.

**G. L. Vernon** has retired as superintendent of the Russell Manufacturing Co.'s No. 4 mill at Alexander City, Ala.

Mr. Vernon

Cone Mills Corp., Greensboro, N. C., has announced changes in the management of the company's finishing operations as follows: **P. C. Gregory, Jr.,** of Greenville, S. C., a Cone Mills vice-president, has assumed the general supervision and responsibility of Carlisle (S. C.) Finishing Co., in addition to his current responsibility for Union Bleachery at Greenville. **Edward E. Jones,** former executive vice-president of U. S. Finishing-Aspinook Corp., has become general manager of Carlisle. **Leonard England,** production manager at Union Bleachery, has been made manager of that plant. **Marshall Gardner,** assistant vice-president of Cone Mills Corp. and formerly manager of the company's Proximity Print Works Plant, has assumed general supervision of the company's operations at Proximity and at Granite Plant, Haw River, N. C. * * * Cone employees who recently retired, include: **M. S. Moore,** overseer of bleaching and dyeing at the Revolution division; **John E. Armfield,** overseer of dyeing at the White Oak plant; **Walter J. Johnson,** assistant overseer of the Central Maintenance; and **William M. Hayes,** assistant overseer of weaving at the White Oak plant; **Gilbert O. Miller,** office manager of the Salisbury plant; **Virgil R. Revels,** superintendent of the Pine-

*(Continued on page 30)*



This loom working on herringbone twill was running at 182 picks per minute, and an oscilloscope showed that when **GIANT GRIP AIR-LOC** was used, vibration was practically eliminated. Not bolted or glued to the floor, the loom "stayed put".

# DEVELOPED FOR LOOMS ONLY

# GIANT GRIP

(patent applied for)

Air-Loc® 4·17·1

**is the only loom mount that gives you *all* of these advantages:**

1. *Saves you money* on installation because you use no bolts, glue or cement.

2 Special *grip surface* HOLDS looms in place, on any type of floor.

3 *Can be reused* when looms are moved, because its vinyl-cork construction is more resilient than any known mounting on the market today.

4. *Completely resists* oil, ozone and detergents.

5. Turns *vertical* loom movement into *horizontal* movement and practically eliminates the vibration that can cause downtime.

6. *Self-leveling* . . . insures permanent loom alignment.

**For a sample of GIANT GRIP AIR-LOC call:**

*Southern Representative:*
**YEOMANS TEXTILE MACHINERY CO.**
Spartanburg, S. C.

*Northern Representative:*
**AMERICAN SUPPLY CO.**
Central Falls, R. I.

or write to the manufacturer:

## CLARK, CUTLER, McDERMOTT CO.

**106 WEST CENTRAL STREET, FRANKLIN, MASSACHUSETTS**

# A BETTER WEAVE
# A FINER FINISH
# WITH *Clinton* STARCHES

Trust Clinton's 50 years of know-how in the textile field to give you 'right-hand' help — from fibre to finish.

Clinton starches are engineered and developed for easier handling on every warp-sizing application, every finishing application. For smoother production, greater efficiency in weaving and printing, better quality and sales acceptance of your finished fabrics, count on Clinton products. Clinton can meet your production needs for uniformity with minimum seconds. Achieve the hand that lasts the life of the fabric — with Clinton!

To keep your products on top, and to develop new corn refining processes and products, Clinton has just opened a new million-dollar research center. This laboratory serves as "home base" for your Clinton technical man.

*. . . and remember* technical service in connection with your specific problems is available without obligation.

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**CLINTON CORN PROCESSING COMPANY**
CLINTON, IOWA

# FOR THE MOST SATISFACTORY DYEING EQUIPMENT INSIST ON THE

# MORTON SYSTEM

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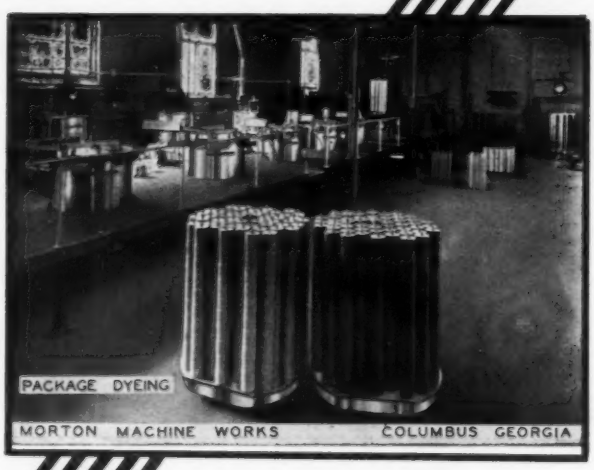


It pays to look into the quality of the machine and the quality of the work it will produce.

Whatever your requirements in stock, package, as well as beam dyeing machinery, a Morton System dyeing machine is your *best bet.*

Have one of our engineers call to discuss your problem.

# MORTON MACHINE WORKS, Inc.

## COLUMBUS, GEORGIA, U. S. A.

*Manufacturers of the MORTON SYSTEM Machinery for Dyeing and Bleaching of:*
*BEAMS -:- PACKAGES -:- STOCK -:- PIECE -:- TOPS*

**VALVES — PUMPS — BEAM AND PACKAGE EXTRACTORS AND DRYERS — DYE BEAMS, ALL MAKES AND DESIGNS — DYE TUBES — DYE SPINDLES — TUBE SPACERS — STAINLESS STEEL DYE TUBES — CUSTOM BUILT TANKS TO CUSTOMER'S SPECIFICATIONS**

## Tough . . . 2-ply

# Dayco Rub Aprons

## Lower Your Carding Costs

**SAVINGS MOUNT UP** when you figure that Dayco Rub Aprons completely eliminate the cost—at approximately $25.00 an hour—of oiling the aprons when your cards are stripped. And the dimes and quarters you save here and there—because Dayco Rub Aprons need less routine maintenance—soon add up to the cost of the aprons themselves. Besides, what a difference Dayco Rub Aprons make in the quality and uniformity of your yarn!

**LONGER LASTING** Dayco Rub Aprons are doubly reinforced with two plys of tough-rubber impregnated fabric. This extra strength not only gives Dayco Aprons greater stamina under constant flexing . . . it reduces eccentric motion by 33%! Naturally, buttons stay fixed in an apron as tough as this.

**YARN QUALITY** is always consistently high for the texture of Dayco Aprons never varies. Maintaining the highest coefficient of any apron available, Dayco Rub Aprons never become slick or glazed, are immune to changes in temperature and humidity, and are unaffected by emulsion oils which cause *surface growth* in other aprons. As a result, yarn quality never varies—day in, day out, month after month.

**TROUBLE-FREE** Dayco Aprons have an extra-deep synthetic surface which resists the abrasive action of constant rubbing. Since they require no oiling, maintenance is simplified and card downtime virtually eliminated. Nor do Dayco Aprons require frequent adjustment. Perfectly concentric, they hug the rolls tightly for accurate tracking and a positive, non-slip drive at all times.

**DAYCO ENDLESS CONDENSER TAPE**

Features offering additional savings . . . greater card efficiency:

- No stretch—little need for take-ups
- Less tendency to twist or turn over
- Easy to clean—require less attention
- Unaffected by oil or static
- Will not crack, economical, efficient

*Next time he calls, ask your Dayco representative for an estimate of the savings Dayco Rub Aprons can make in your mill. Or write the Dayton Rubber Co., Textile Div., 401 S. C. National Bank Building, Greenville, S. C.*

**Dayton Rubber**

OVERSEAS PLANT, THE DAYTON RUBBER CO. LTD., DUNDEE, SCOTLAND

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*Dayco and Thorobred Textile Products for Better Spinning and Weaving*

# NEW.....

Now, in book form!

# "WARP SIZING"

The wonderful series of articles on warp sizing which appeared exclusively in TEXTILE INDUSTRIES during 1957 is being reprinted in book form and made available to mill technicians and executives, now.

If you read the articles as they appeared you know how thoroughly they covered the subject and you will without doubt want the book for reference and study. If you did not read the series as they were printed, then you will welcome this chance to get your copy of the 500 page book.

The author, Dr. Paul V. Seydel is an internationally known expert on sizing. He is thoroughly grounded in theory and practice and pre-eminently qualified to handle the subject.

Just look these chapter headings over and see how completely the facts are presented.

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The Material to be Sized—Cotton
The Material to be Sized—Man-Made Fibers
Materials for Sizing
Analysis and Testing of Materials for Sizing
The Sizing Process
Testing and Analysis of the Sized Materials
Handling and Properties of the Sized Warp
The Slasher Room and its Equipment
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## Personal NOTES ABOUT MEN YOU KNOW

*(Continued from page 24)*

ville plant; **J. Fleet Shelton,** overseer of the electrical department of the Minneola plant; **George P. Younger,** supply room clerk at the Minneola plant; **Scott L. Long,** overseer of the dressing department, Dwight Division; and **James M. Riley,** assistant overseer of carding at the Minneola plant.

At the Chatham Manufacturing Co., Elkin, N. C., **J. W. L. Benson,** vice-president and chief plant engineer, has retired following a period of 25 years service with the firm. **Claude Hart,** as Mr. Benson's successor, will be in charge of plant engineering, preventive maintenance, and research. Mr. Hart has been with Chatham for seven years. **Irl Shamel,** who has retired as head of the napping department, is succeeded by **Herbert (Junior) Caudle.**

Newly named president of Clifton Yarn Mills, Clifton Heights, Pa., is **J. Wallace Susskind,** formerly vice-president of the firm. Mr. Susskind succeeds his late mother, Mrs. Mabel Wallace Susskind. **Alfred A. Forster** who was vice-president, has been named board chairman and will continue as general manager. **William B.** Susskind has been elevated from secretary to vice-president. **Ann S. Rill** is new secretary, and **Norman J. A. Mitchell** continues as treasurer.

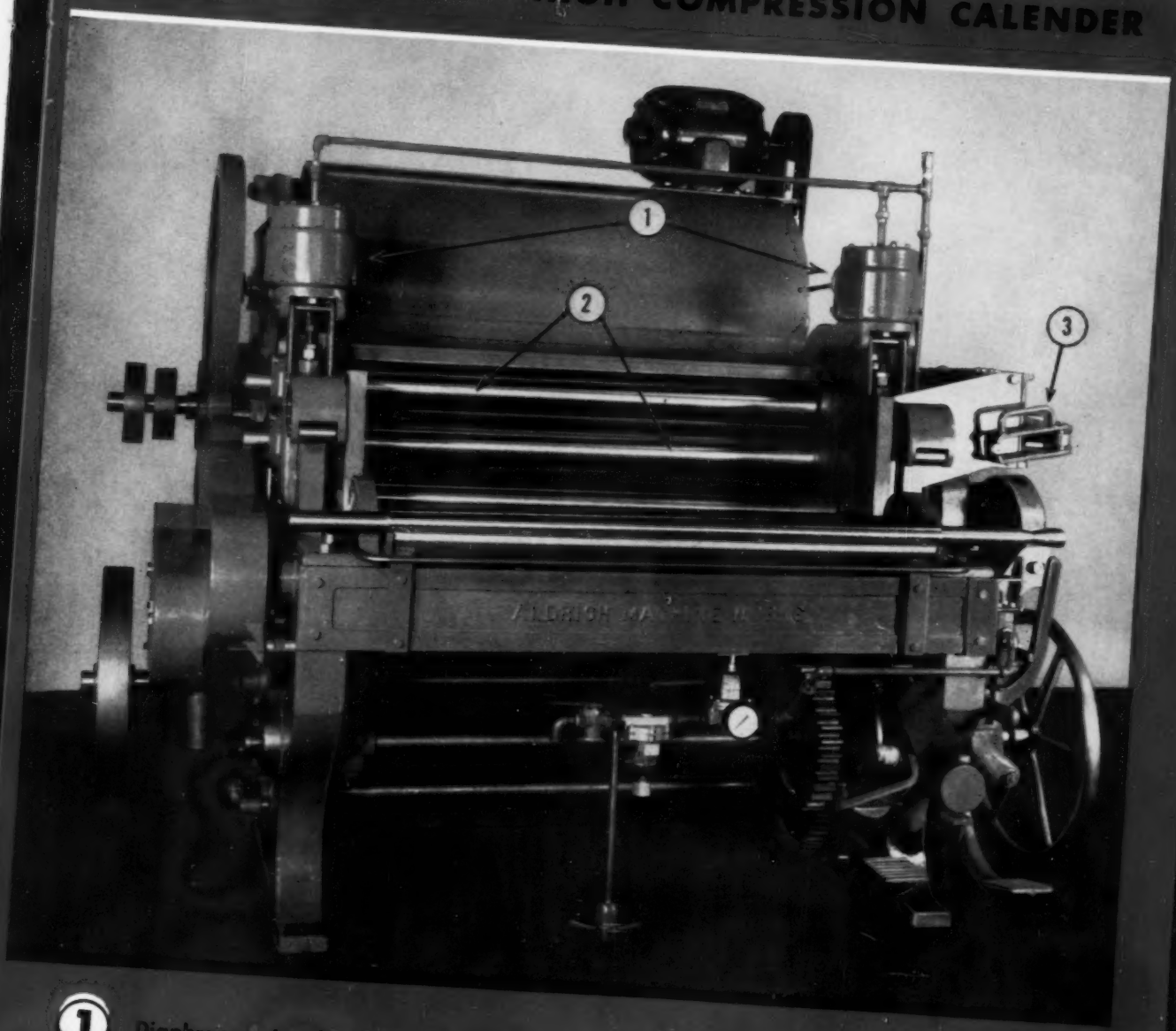
**Frank Heslewood,** formerly a carder at Amerotron's Barnwell, S. C., plant is now boss carder at Yantic (Conn.) Woolen Mills.

**Stanley M. Herlin,** president of Portage (Wis.) Hosiery Co. and Ripon (Wis.) Knitting Works, was recently elected president of the Wool Hosiery Manufacturers Institute. **Hugh Dales,** Wigwam Mills, Sheboygan, Wis., was named secretary-treasurer of the group.

American Society for Testing Materials Committee D-13 on Textile Materials will present the Harold De Witt Smith Memorial Medal to **Dr. Stephen J. Kennedy,** research director, textile, clothing, and footwear division, Quartermaster Research and Development Center, Natick, Mass. The presentation will be made on March 20, 1958, during the spring meeting of the committee.

*(Continued on page 40)*

# The ALDRICH HIGH COMPRESSION CALENDER




**1** Diaphragm air cylinders, having neither pistons nor stuffing boxes, apply resilient pressure up to 12,000 pounds upon the calender rolls. Resilient pressure gives more uniform calendering, and protects the calender from shock loads. All pressure is released each time the calender stops, and is instantly applied when it starts.

**2** Meehanite calender rolls, stronger and smoother than grey iron, are carried on roller bearings which fit standard roll necks. The special mountings for these bearings keep the rolls perfectly aligned at all times. This is very important where more than three times the usual pressure is applied to the rolls.

**3** Pneumatic Lap Pin Extractor exerts a pull of 800 pounds to remove the pin from the tightest lap.

**AldricH MachinE WorkS**

Greenwood, South Carolina

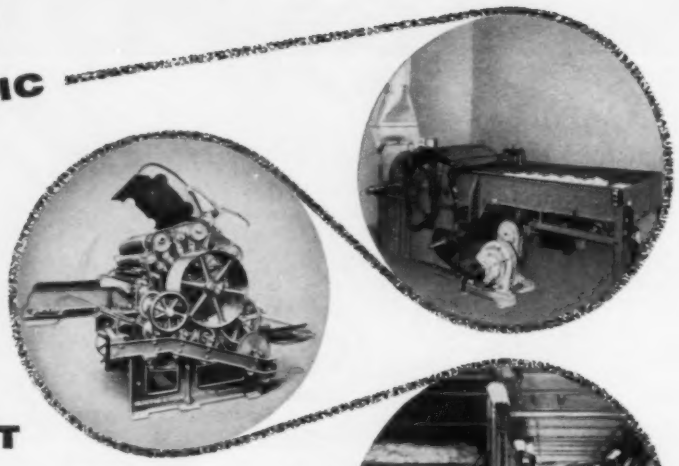
# NON-WOVEN FABRICS

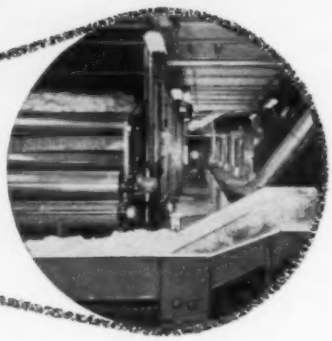
## FROM BALE TO FABRIC

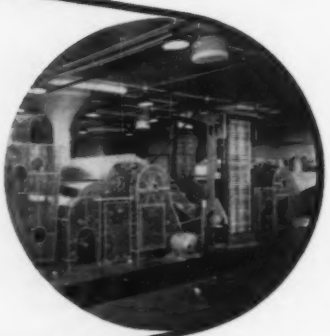
WITH

Proctor®

EQUIPMENT







Successful non-woven fabric manufacturers today recognize the garnett as the prime web forming apparatus for making top quality non-woven fabrics without sacrificing high production. By choice of type or arrangement of these garnetts, a complete range of non-wovens can be made, that is, parallel fiber array, cross lapped, or isotropic.

Production now being obtained on Proctor web forming equipment ranges from 100 to 700 lbs/hr in widths of 60" to 96", depending on the desired requirements of the specific material being processed.

Proctor can supply complete non-woven production ranges for handling natural and synthetic fibers from the initial opening and blending through the required pre-carding and final web formation.

Non-woven fabrics are an ideal end use for many reprocessed fibers. Proctor has a complete line of equipment for waste reclamation suitable for upgrading and preparing fibers for the manufacture of these fabrics.

A wide range of drying and curing machinery is also available, engineered to handle the individual mill's fabric construction and bonding agent.

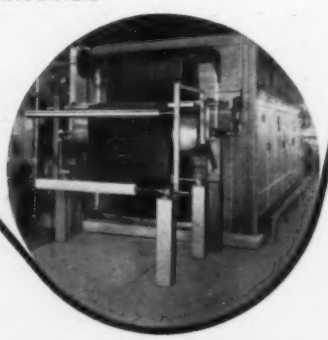
Auxiliary slitting and batching machinery can be furnished to complete the range.

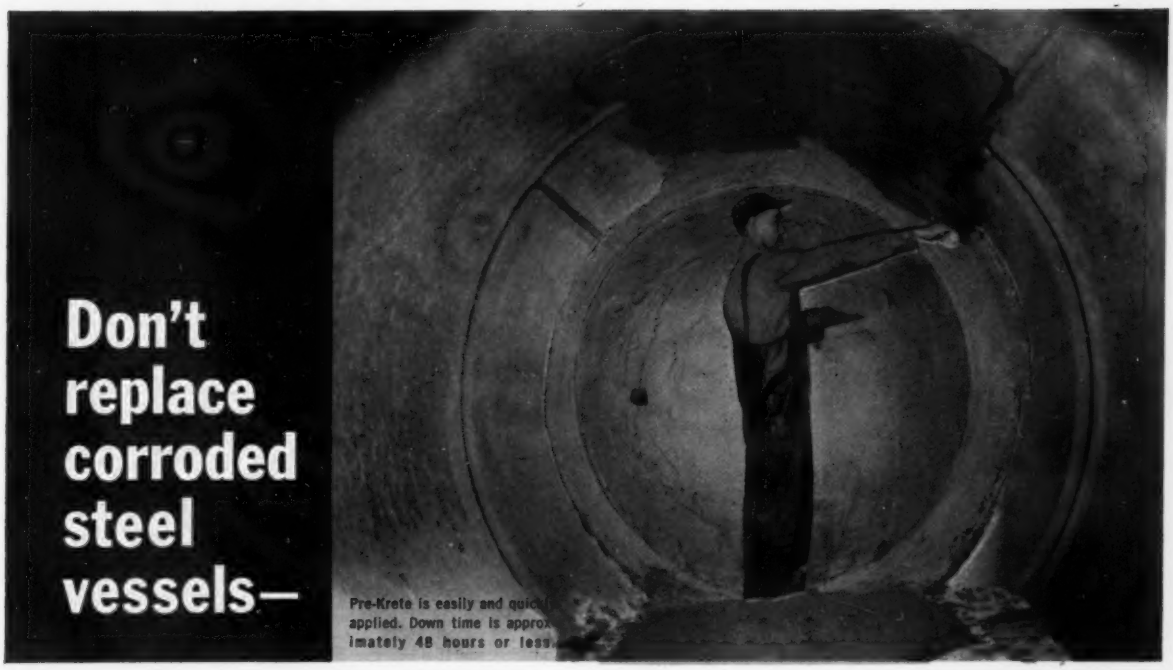
**PROCTOR & SCHWARTZ, Inc.**

PHILADELPHIA 20, PA.

*Proctor Equipment For Manufacturing Non-Woven Fabrics . . .*

- BALE BREAKERS
- PICKERS
- SHREDDERS
- REPROCESSED FIBER GARNETTS
- BLENDING FEEDS
- BLENDING BINS
- CARD AND GARNETT FEEDS
- WEB FORMING GARNETTS
- CROSS LAPPERS
- DRYERS
- CURERS
- SLITTERS
- WINDING HEADS






# Pre-Krete® can give them a long, new life

Tests by an independent laboratory—complete report on request — indicate that special formula C-17 Pre-Krete cement lining can greatly prolong the life of open or closed steel vessels. The test was made under conditions much more severe than those encountered in actual use. For years, thousands of Pre-Krete lined vessels have demonstrated this enduring quality.

**See your Pre-Krete Dealer-Applicator**

Now Pre-Krete is available to you, in your area, through carefully chosen dealer-applicators. These P-K franchised representatives (listed below) will call without obligation on your part and estimate the cost of Pre-Krete lining. If you have a maintenance staff familiar with applying cement linings, our P-K Dealer-Applicator will furnish your needs from stock. Your own applicator can probably qualify for a Pre-Krete franchise if the territory is open. More dealer-applicators are being added daily.

Enjoy years of rust-free water service with Pre-Krete. And remember, it imparts no discoloration, is non-toxic and completely inert to most chemicals. Write for Bulletin 1012 for laboratory test results and complete information on Pre-Krete's applications to your needs.

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**BIRMINGHAM**
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Lignite Combustion Engineering Corp.
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**CASPER**
Construction Specialties Co.
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Sarco Canada, Ltd.
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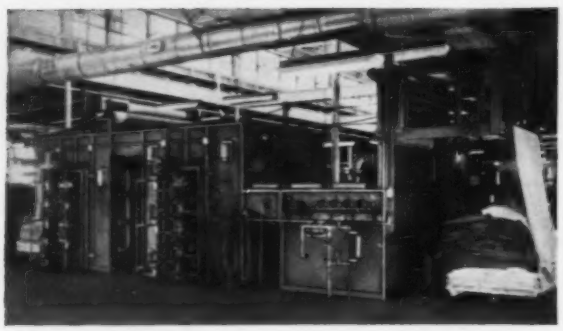
**HAWAII**
Dearborn Chemical Company
941 Waimanu Street
Honolulu, Hawaii

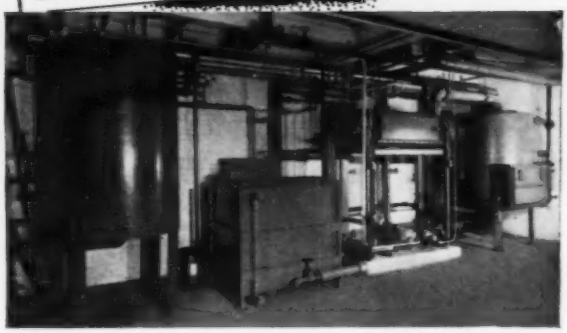
# The Fleet Line for Synthetics AND Woolens & Worsteds

## DERBY CONTINUOUS DRY CLEANER



Distilling Equipment (located below machine) effects important savings through solvent and oil recovery.

ECONOMICAL! DIFFERENT!! EXCLUSIVE!!!



## CHECK THESE FEATURES

### *Synthetics and Synthetic Blends*

1. Efficiently removes finishing oils, used in production of the fiber and in manufacturing operations, which are difficult to remove in fulling and scouring.
2. Removes excess dyestuffs, reduces crocking.

### *Woolens and Worsteds*

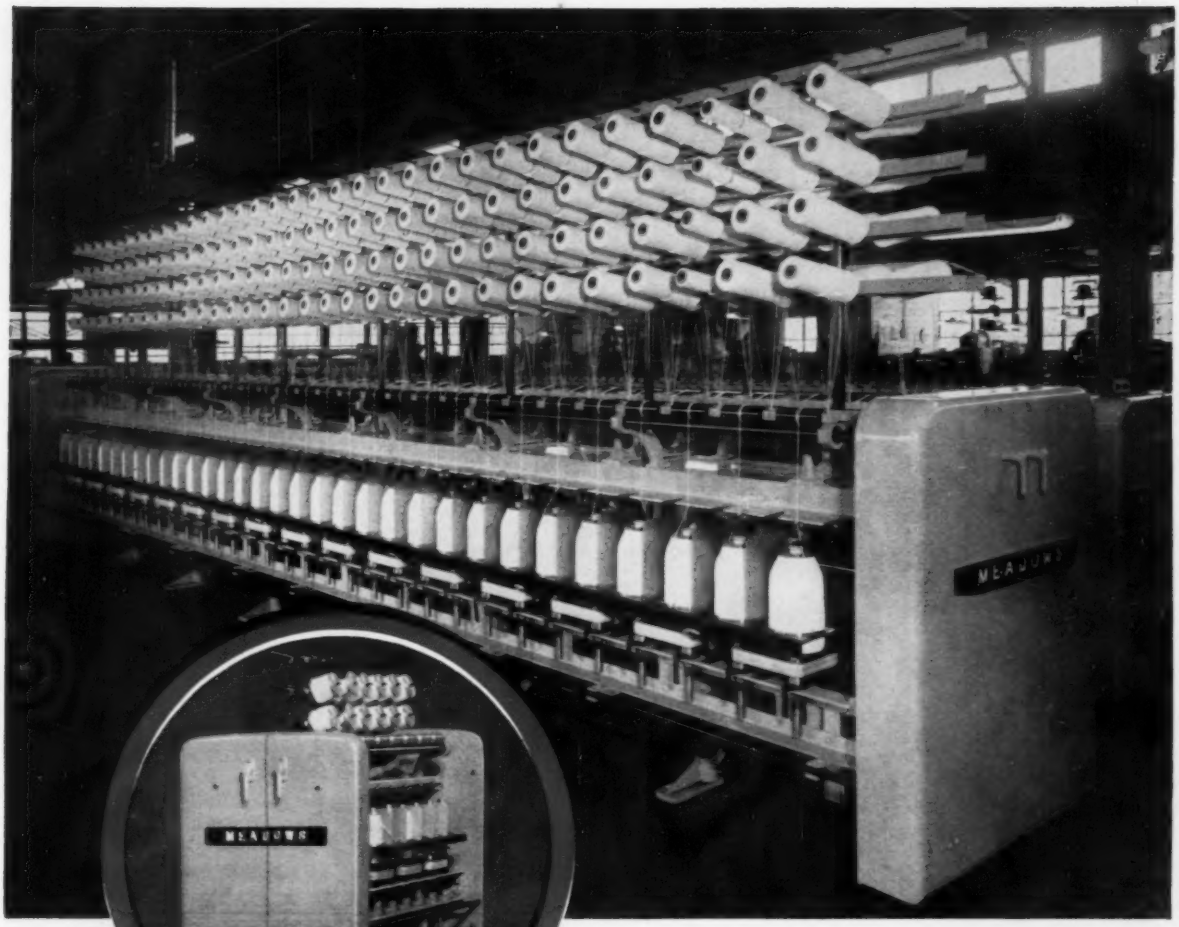
1. Valuable to facilitate carbonizing in grey.
2. Dry Cleaning before carbonizing in grey, previous to fulling, eliminates heavy grease deposits in the carbonizer.
3. Continuous operation through Carbonizing Range.
4. Recleaning of finished goods without costly reprocessing.
5. Reduced cost of fulling mill and scouring operation by grease removal in cleaner.
6. Permits fulling in acid with suitable detergents.

**NOTE:** One-man operation, with production as high as 30 yards per minute on 14 to 16 oz. woolens. This machine made by Riggs & Lombard *exclusively.*

## RIGGS AND LOMBARD INC.

**FOOT OF SUFFOLK STREET, LOWELL, MASS.**

Agents: Paul A. Merriam Co., P. O. Box 86, Providence, R. I. • Larry T. Nelson, 860 3rd St., Santa Monica, Cal.
Albert R. Breen, 80 E. Jackson Blvd., Chicago 4, Ill. • F. W. Warrington Co., 611 Johnston Bldg., Charlotte, N. C.
A. Harold Zayotti, Jr., P. O. Box 125, Riverton, N. J. • H. E. Mott Co., Limited, Brantford, Ontario, Canada



This Model only 14" high

**A LITTLE GIFT FOR THE BOSS...**

**A *BIG* GIFT FOR THE INDUSTRY**

# MAY WE TWIST YARN ON YOUR DESK?

We have said "we build twisters from the smallest to the largest". The 1/6 scale model shown here was made in our shops by our skilled craftsmen, on their own time as a gift to the Boss.

It actually runs, and on your desk we can demonstrate with it how we have licked friction in Meadows Twister Frames.

The Jumbo twister that carries a 14" overall bobbin is our big one. Others range as you need them, and can be custom made. But the big new thing is friction freedom that cuts power load, reduces ends down, permits the highest speed operation available to you.

The Meadows Twisters were amply tested in actual mill operation before announcement. Upon announcement, the response was immediate, and actual orders received included one installation, now complete, totalling 76 frames.

What are your twisting needs? Contact us, and let us show you what Meadows Anti-Friction can do.

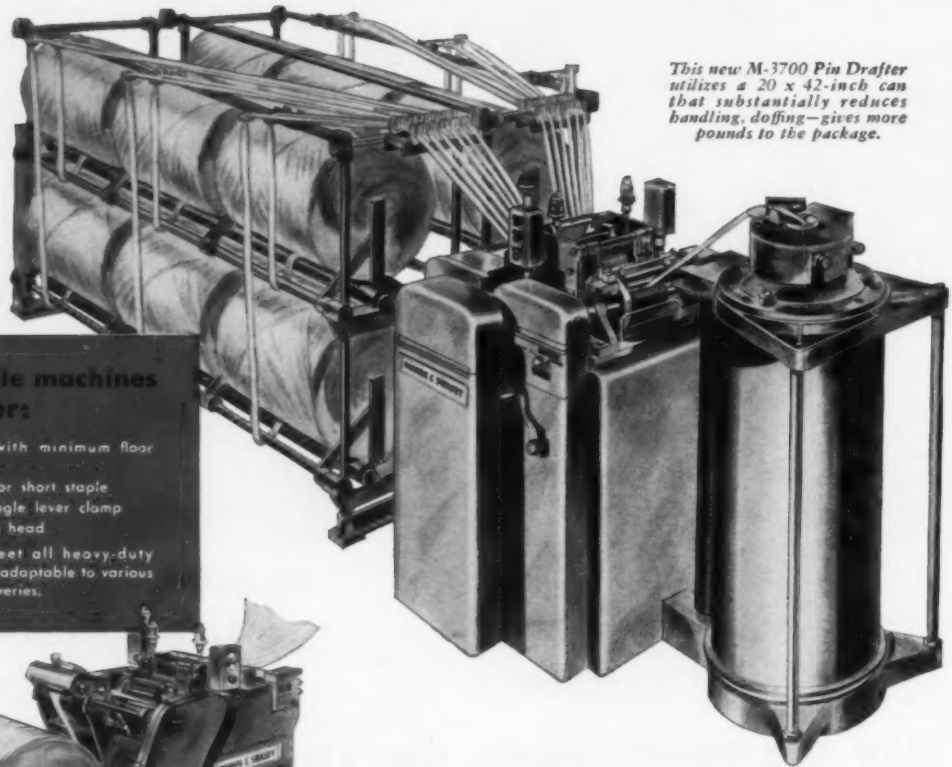
## MEADOWS MANUFACTURING COMPANY

*Established 1931*

ATLANTA, GEORGIA, U.S.A.

**NOW AVAILABLE!**

# New Warner & Swasey Wide Setover Pin Drafter®—handles all your drawing needs

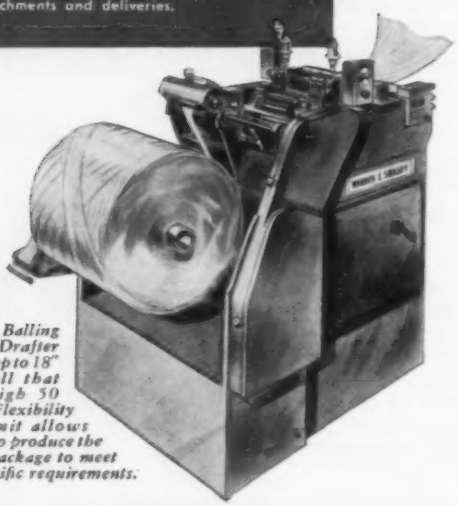


*This new M-3700 Pin Drafter utilizes a 20 x 42-inch can that substantially reduces handling, doffing—gives more pounds to the package.*

**These versatile machines offer:**

- High productivity with minimum floor space
- Close nip control for short staple
- Completely new single lever clamp
- Redesigned balling head

In addition they meet all heavy-duty requirements and are adaptable to various attachments and deliveries.



*The new Balling Head Pin Drafter delivers up to 18" x 24" ball that may weigh 50 pounds. Flexibility of the unit allows the mill to produce the type of package to meet their specific requirements.*

No matter where you are now using pin-controlled drawing equipment, a whole new field of profitable operation is opened up by the "all-purpose", versatile 8" wide setover Pin Drafter Intersecting Draw Frame. See your Warner & Swasey Field Engineer today for the complete story.

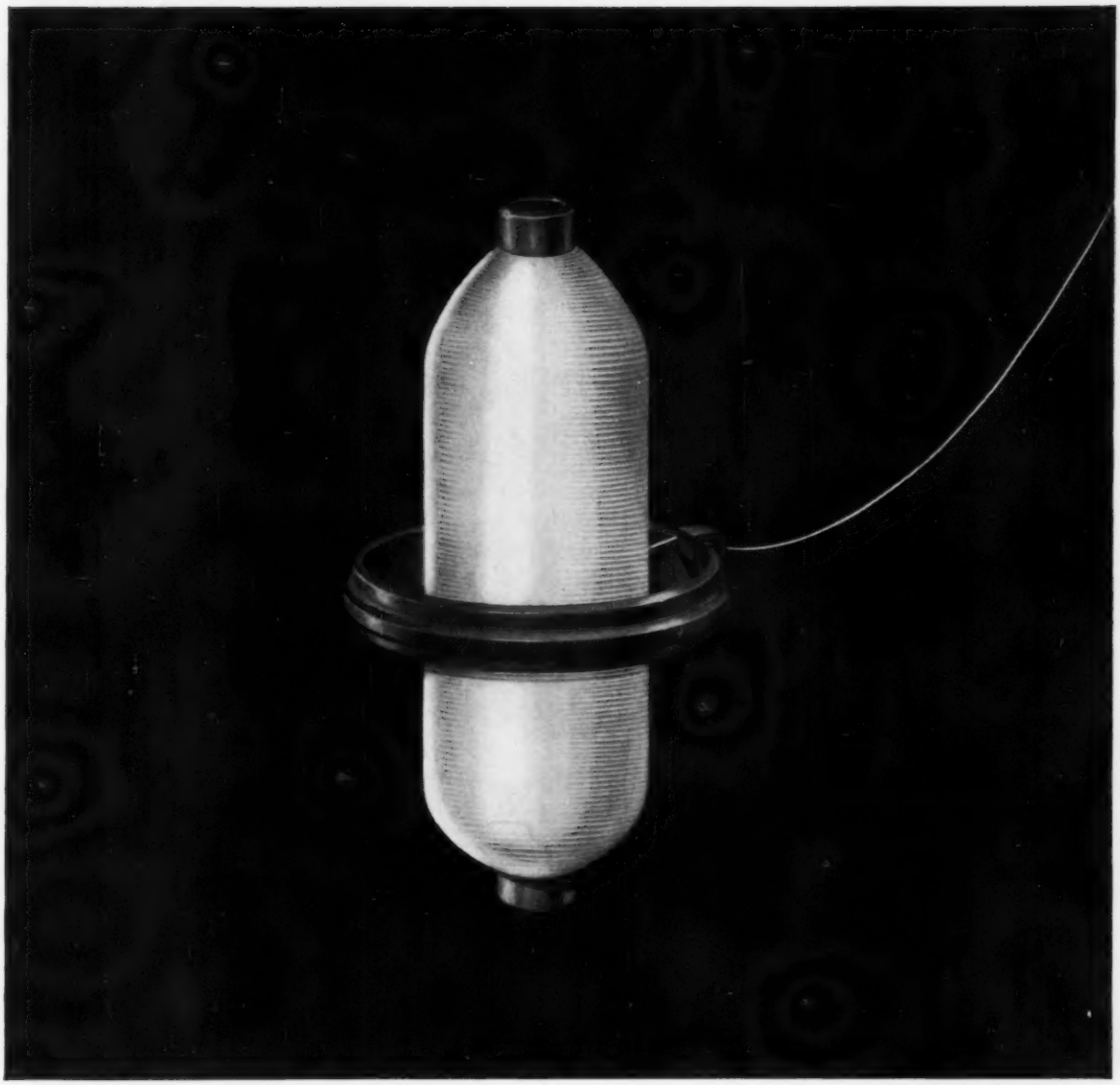
® Reg. U. S. Pat. Off.

WARNER & SWASEY
TEXTILE MACHINERY DIVISION

**SALES OFFICES**

Main Office and Factory: 5701 Carnegie Ave., Cleveland 3, Ohio
20 Chestnut Street, P. O. Box 215, Needham 92, Mass.
121 11th Street, N. E., Atlanta 3, Ga. • 624 Pecan Avenue, Charlotte 1, N. C.
Suburban Square Bldg., Ardmore (Philadelphia), Pa.

**YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS...WITH A WARNER & SWASEY**



# reduce wear, lengthen life of spindle bearings

Spinesso is a premium-grade lubricating oil for both spinning and twister spindle bearings. Its exceptionally high oxidation stability affords maximum bearing protection — and extends the time between lubrications considerably. Spinesso's high resistance to oxidation inhibits the formation of dark, sludge-like deposits that cause friction in the bolster — and stain yarn.

Spinesso is specially processed to provide an extra measure of protection against wear and to materially reduce rusting and pitting. Thus the problems most frequently encountered in high-speed bearing operations in humid textile mill atmospheres are minimized. Spinesso gives positive protection at all times — even at start-up when immediate and effective lubrication is essential.

Textile mills that have switched to Spinesso report *cleaner, longer-lasting spindle bolsters and blades—with less frequent lubrication.*

Spinesso is available in *three* viscosity grades. Get the whole story on this fine product . . . contact your nearest Esso Standard Oil Co. Division Office: Boston; Pelham, N. Y.; Elizabeth, N. J.; Bala-Cynwyd, Pa.; Baltimore; Richmond; Charlotte; Columbia, S. C.; Memphis; New Orleans.

FOR BETTER RESULTS

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Esso

SPINESSO—Reg. U. S. Pat. Off.

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TC
TENNESSEE CORPORATION

# HYDRO

## SODIUM HYDROSULFITE

**CONCENTRATED**

**TC-HYDRO** is a dry, white, free flowing, crystalline powder of uniform size and structure. It is dust free, assuring highest stability and uniformity.

### AS MINERS OF SULFUR BEARING ORES

We have utilized our basic position in Sulfur Chemistry to produce another product of highest purity and quality for use in the textile industry.

### WHEN YOU NEED IT—

Our production is located in the heart of the Southern Textile Industry which permits us to render over-night delivery service to most Southern points—also small lot shipments are available from centrally located warehouses.

*Phone, Wire or Write for literature and test samples if desired.*

SODIUM HYDROSULFITE
TC HYDRO
CONCENTRATED

TENNESSEE TC CORPORATION

617-629 Grant Building, Atlanta, Georgia

*Let*
# SHAMROCKS
*help you*

**INCREASE TEXTILE PRODUCTION**

*Save time and money*

**No. 12 SHAMROCK DOFF BASKET**

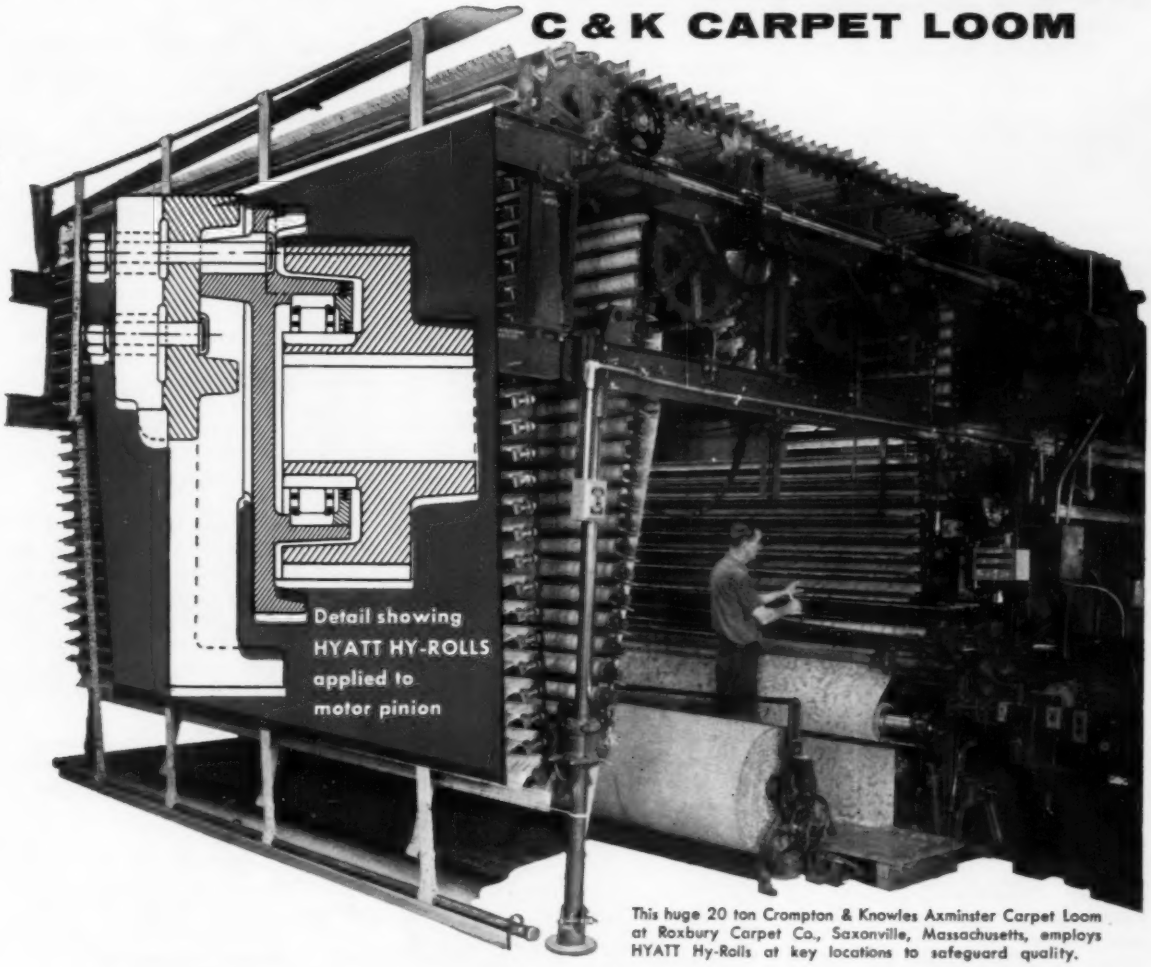
Photo shows No. 12 leather reinforced Doff Baskets in use at a large Southern textile mill. Baskets are loaded with yarn that is being dumped into spooler.

Every hour you save with Shamrocks means another hour of production! That's why sturdy Shamrock Baskets . . . preferred in textile plants everywhere . . . pay for themselves many times through their long service life. The No. 12 Shamrock Doff Basket is "built to take the knocks", from its leather-reinforced canvas body to its smooth hardwood runners. Let a Shamrock representative survey your plant and recommend the right Shamrock styles for your particular needs! Manufactured by MEESE, INC., Madison, Indiana.

SALES OFFICES: NEW YORK—F. R. Tyroler, 55 West 42nd St., PE 6-0615; ATLANTA—W. E. Patway, 723 Densley Dr., North Decatur, Ga., ME 6-3192; FORT WORTH—V. M. Hooton, 4220 Normandy Road, Tel. Jefferson 6-6564; WEST COAST—Petersen-Daniels, Inc., 3311 Beverly Blvd., Montebello, Calif., RAymond 3-7003. Export Mgr.—R. A. Auerbach, Easton, Pa. Cable Address, "Natly."

**SHAMROCK**
**CANVAS BASKETS • HAMPERS • TRUCKS**

# HYATT HY-ROLLS MAINTAIN CRITICAL SETTINGS ON 15 FOOT C & K CARPET LOOM




This huge 20 ton Crompton & Knowles Axminster Carpet Loom at Roxbury Carpet Co., Saxonville, Massachusetts, employs HYATT Hy-Rolls at key locations to safeguard quality.

Crompton and Knowles, like other leading textile machinery manufacturers, specify HYATT Hy-Rolls to insure maximum efficiency and dependability for their products. Precision-built HYATT bearings maintain critical settings where fast-wearing plain bearings often fail. From carding to finishing, HYATTS substantially reduce costly seconds by assuring uniform quality of yarn and fabric and eliminating oil spatter completely. HYATTS save up to 90% on lubrication—up to 40% on power—assure longer trouble-free bearing life. For original equipment or replacement, all these advantages make standardization on HYATT Hy-Rolls a *profit building program*. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

**When you modernize or replace any textile machinery, be sure it has money-saving . . .**

1908–1958
GM
FORWARD FROM FIFTY

# HYATT HY-ROLL BEARINGS FOR TEXTILE INDUSTRY

## Personal NOTES ABOUT MEN YOU KNOW

*(Continued from page 30)*

**Lawrence J. Marx, Jr.,** vice-president of Clearwater (S. C.) Finishing Co., was recently elected president of the National Association of Textile Finishers, succeeding Marshall J. Cole of Cold Spring Bleachery. Other officers elected were: Vice-presidents —**Godfrey S. Rockefeller,** Cranston (R. I.) Print Works; and **Richard D. Wood, Jr.,** Millville (N. J.) Mfg. Co. **Joseph E. Hoesl** was reelected secretary and treasurer.

**Edward F. Mulally,** formerly assistant manager of the Glenlyon Print Works in Phillipsdale, R. I., has joined Cranston Print Works as divisional superintendent of printing.

Three new vice-presidents were appointed in a reorganization move by Diamond Hosiery Corp.: **James P. McDermott, Fred J. Wiley,** and **Frank B. Aberle.** Mr. McDermott was named vice-president and comptroller in charge of the administration division, succeeding E. J. Siegrist. Mr. Wiley is vice-president in charge of manufacturing and Mr. Aberle vice-president in charge of finishing and distribution.

**Henry Knight** is manager and **Frank Wells** superintendent of the new woolen yarn mill in Norton, Mass., recently started by Draper Brothers Co., of Canton, Mass.

**Dr. Fred Khoury** is now a senior associate at Fabric Research Laboratories, Inc., Dedham, Mass. He was formerly with British Nylon Spinners, Ltd.

**W. E. Jackson,** formerly assistant general manager of Dodgeville (Mass.) Finishing Co., is now superintendent of the Pontiac (R. I.) Finishing Plant of Fruit of the Loom.

On January 1, 1958, **Dr. J. L. Taylor,** head of the chemistry and dyeing department of the A. French Textile School at the Georgia Institute of Technology, Atlanta, Ga., was named acting director of the textile school. He succeeded **Herman L. Dickert** who asked to be relieved of his administrative duties to devote more time to research, writing, and teaching at the school in which he had served as director since 1945.

At Fulton Bag & Cotton Mills, Atlanta, Ga., Mill #1, **Charles Mount,** formerly overseer of weaving, is in charge of the training program for skilled and semi-skilled operatives. **C. E. Hyder** has assumed responsibility for all weaving in Mill 1 and Mill 2. Mr. Hyder is now classified as general overseer of weaving. His assistant is **L. T. Huff,** with the designation assistant overseer of weaving. **C. H. Burns** has been elevated to the post of vice-president and controller.

**Gordon Hanes** has been elected president of Hanes Hosiery Mills Co., Winston-Salem, N. C. **James N. Weeks,** chairman of the board of

Mr. Hanes

Hanes since 1954, has retired after completing 42 years of service. He will continue as a director and mem-

Mr. Weeks

Mr. Crawford

ber of the executive committee. **R. B. Crawford,** president of Hanes since 1954, was elected chairman to succeed Mr. Weeks. **Clifford Perry,** secretary-treasurer and a director since 1947, has been named vice-president and treasurer. **Robert J. Froeber,** new vice-president, manufacturing, is succeeded as purchasing agent by **Perry G. Harmon,** formerly assistant purchasing agent. New assistant is **B. C. Hall, Jr.,** formerly safety and recreation director. **Hugh Johnson, Jr.,** vice-president and treasurer of Morris-Johnson Company, was named a director, replacing **Philip S. Baker,** who has retired. **Robert D. Byerly, Dr. D. J. Moffie,** and **Frederic E. Sturmer** continue as directors and vice-presidents. **Leigh D. Bulluck,** executive vice-president of Hanes Hosiery, Inc., the sales company, continues as a director of Hanes Hosiery Mills Company.

**Sydney P. Munroe,** vice-president and general manager of Gambrill & Melville Mills Co., Bessemer City, N. C., has been elected president.

The State Bank and Trust Company of Greenwood, S. C., has elected **John B. Harris, Jr.,** vice-president of Greenwood (S. C.) Mills, as a director of the bank and member of its finance committee.

Riegel Textile Corporation has elected to the board of directors **Adrian L. Shuford, Jr.,** Conover, N. C., industrialist and civic leader. Mr. Shuford has been general manager of the Conover plant since its merger with Riegel in 1956.

The appointment of **Dr. Emery I. Valko** to the division of chemistry at Lowell (Mass.) Technological Institute as associate professor has been announced. Dr. Valko recently resigned as vice-president in charge of research and development at Onyx Oil & Chemical Co., Jersey City, N. J.

**John W. Walker** is now assistant general manager of Machias (Me.) Mill, Inc. **Edwin R. Young** continues as plant manager.

Newly named chief of the textile branch purchasing division at the Military Clothing & Textile Supply Agency, Philadelphia, Pa., is **Lt. Col. Louis F. Sauter, Jr.,** succeeding **Lt. Col. Millard J. Miller,** who has been transferred to Pakistan.

The appointments of **E. William Allen** to new product planner, Miss **Patricia Ann Hunter** to publicity assistant and associate editor of "The Shuttle," company magazine of C. H. Masland & Sons, and the promotion of **Archie C. Millar** to chief designer have been announced.

Retired after 39 years in the finishing industry is **Albert A. Curt,** president of the Mt. Hope Finishing Co. of New York, Inc. Mr. Curt had been selling in the New York market for all but the first two of those years, having started at the Mt. Hope Finishing Co. plant.

**Henry Pontefract,** who was superintendent of Hockmeyer Bros., Lowell, Mass., is now superintendent of

*(Continued on page 186)*

# GENACRYL®

# DYES FOR ORLON*

## FOR RICH, FULL SHADES ECONOMICALLY PRODUCED

Sweaters are a necessity in the wardrobes of the younger set. The more colorful, the better. With GDC's Genacryl® dyes, you can match the popular shades shown here or create trend-setting new ones on Orlon, other acrylics, and wool-acrylic mixtures.

Water-soluble Genacryl dyes, a new form of the basic type, are applied directly to the fabric in the presence of acetic acid without numerous complex procedures. Their high tinctorial strength makes possible economical production of bright, full shades that are level and well penetrated. These colors have very good fastness to light, dry-cleaning, perspiration, rubbing and washing.

Write or call our nearest sales office for further information about color-matching formulations and application methods.

*Acrylic fiber of E. I. du Pont de Nemours & Co. (Inc.)

*From Research to Reality*

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**GENERAL DYESTUFF COMPANY**

A SALES DIVISION OF

**GENERAL ANILINE & FILM CORPORATION**

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CHARLOTTE • CHATTANOOGA • CHICAGO • LOS ANGELES • NEW YORK • PHILADELPHIA • PORTLAND, ORE. PROVIDENCE • SAN FRANCISCO • IN CANADA: CHEMICAL DEVELOPMENTS OF CANADA, LTD., MONTREAL

Aerial view of Cone Mills' White Oak plant, Greensboro, N. C. Air conditioning system designed by Ben Smith, Greensboro; installed by Conditioned Air, Inc., Greensboro.

# Auto-AIRMAT filters supply 1,050,000 cfm of lint-free air to Cone Mills' White Oak plant

Lint can't get a "toe-hold" at Cone Mills' modern White Oak plant at Greensboro, North Carolina. AAF lint filters—automatic Auto-AIRMATS—stand guard on 15 air conditioning systems, supply more than a *million cfm* of clean, lint-free air.

Auto-AIRMAT is the only filter designed to remove lint fibres from the air and clean itself at the same time! Airmat filtering material, unwinding from roll at top of unit, moves automatically down the face of the filter, collecting lint all the way—re-winds into easily-disposable roll at bottom.

If you've got a lint problem, investigate the lint filter—AAF's Auto-AIRMAT. Call your local American Air Filter representative, or write direct for Bulletin 234.

Herman Nelson Unit Blowers

Herman Nelson Propeller Fans

AAF herman nelson

**American Air Filter**
COMPANY, INC.

275 Central Avenue, Louisville 8, Kentucky
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— BETTER AIR IS OUR BUSINESS —

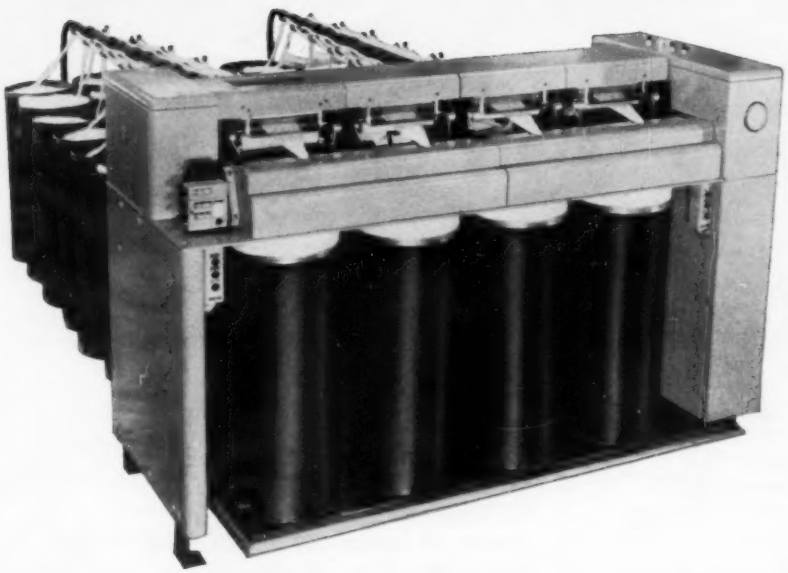
Illinois Heating Specialties

Air Filters and Precipitators

A HIGH PRODUCTION MACHINE
THAT BELONGS IN YOUR MILL

# SACO-LOWELL'S
# VERSAMATIC
## DRAWING FRAME

***KEEPS YOU AHEAD OF COMPETITION BY LOWERING OPERATING COSTS, INCREASING PRODUCTION, IMPROVING QUALITY.***



**VERSAMATIC** *GIVES HIGHEST PRODUCTION OF QUALITY SLIVER BY EVERY STANDARD –*

- **PER DELIVERY**
- **PER MAN HOUR**
- **PER HORSEPOWER**
- **PER SQUARE FOOT OF FLOOR SPACE**

Invest a few moments time today to obtain all the facts from your SACO-LOWELL Sales Office — it's an investment that can result in a sounder, more profitable tomorrow for your mill.

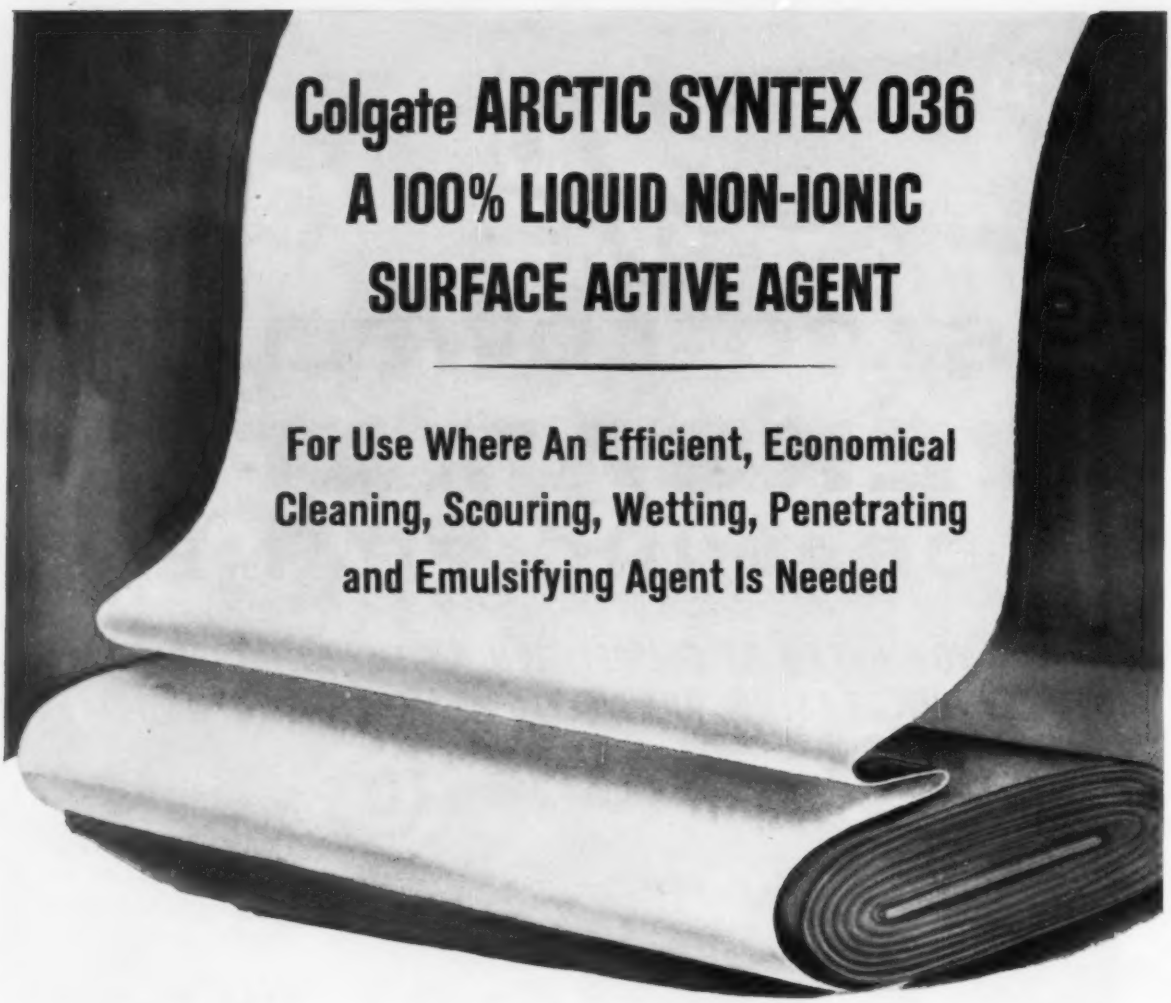
**SACO-LOWELL SHOPS**

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD & SACO, MAINE; SANFORD, N.C.; EASLEY, S.C. Sales Offices: CHARLOTTE · GREENSBORO · GREENVILLE · ATLANTA

# Colgate ARCTIC SYNTEX 036
# A 100% LIQUID NON-IONIC SURFACE ACTIVE AGENT

## For Use Where An Efficient, Economical Cleaning, Scouring, Wetting, Penetrating and Emulsifying Agent Is Needed



Compatible with anionic, cationic and non-ionic chemical substances, ARCTIC SYNTEX 036 is not inactivated by acids, alkalies, oxidizing or reducing agents; or by most organic ions.

Stable for long periods at high temperatures. Will not form salts with metal ions. Very effective at low concentrations. Stable and effective in both hard and soft water.

**CHEMICAL ANALYSIS**

| | Per cent as received |
|---|---|
| Active Ingredient | 99+ |
| Moisture | 0.5 max. |
| Ash Content | 0.1 max. |

**STABILITY**

| | |
|---|---|
| Hard Water | Unaffected |
| Metal Salts | Unaffected |
| Alkalies | Unaffected |
| Acids | Unaffected |
| Oxidizing & Reducing Agents | Unaffected |

**RECOMMENDED**

***For Use In Textile Processes Or Compounds:***

**(1)** Where emulsification and removal of oil and grease are desired. **(2)** In acid or alkaline solutions where other surface active agents may be inactivated. **(3)** In hard water or solutions of metal salts. **(4)** In combination with other anionic and cationic agents and other surface active or nonsurface active agents.

***For More Detailed Information, Write:***
***Technical Service, Associated Products Department***

**Colgate-Palmolive Company**
**300 Park Avenue, New York 22, N.Y.**

# Decrease Downtime WITH SONOCO-RESEARCHED PRODUCTS

There is nothing that cuts deeper into profits than downtime . . . and here's how SONOCO-researched carriers keep downtime to a minimum.

All SONOCO cones represent exhaustive research and development. They are made to accept and deliver yarn smoothly. Downtime, resulting from the carrier, is practically eliminated.

The SONOCO 3°30′ cone, as shown, is a typical example. It is job-engineered especially for winding rayon, nylon and other filament yarns.

SONOCO is the one company in its field that, for nearly 60 years, has supplied the industry with research-developed paper carriers. For you, SONOCO products mean better performance, greater economy and more profitable production!

# SONOCO

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## Products for Textiles

**SONOCO PRODUCTS COMPANY**

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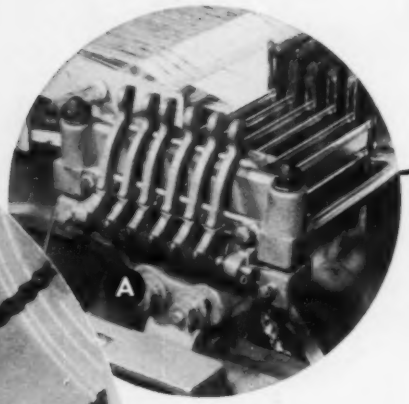
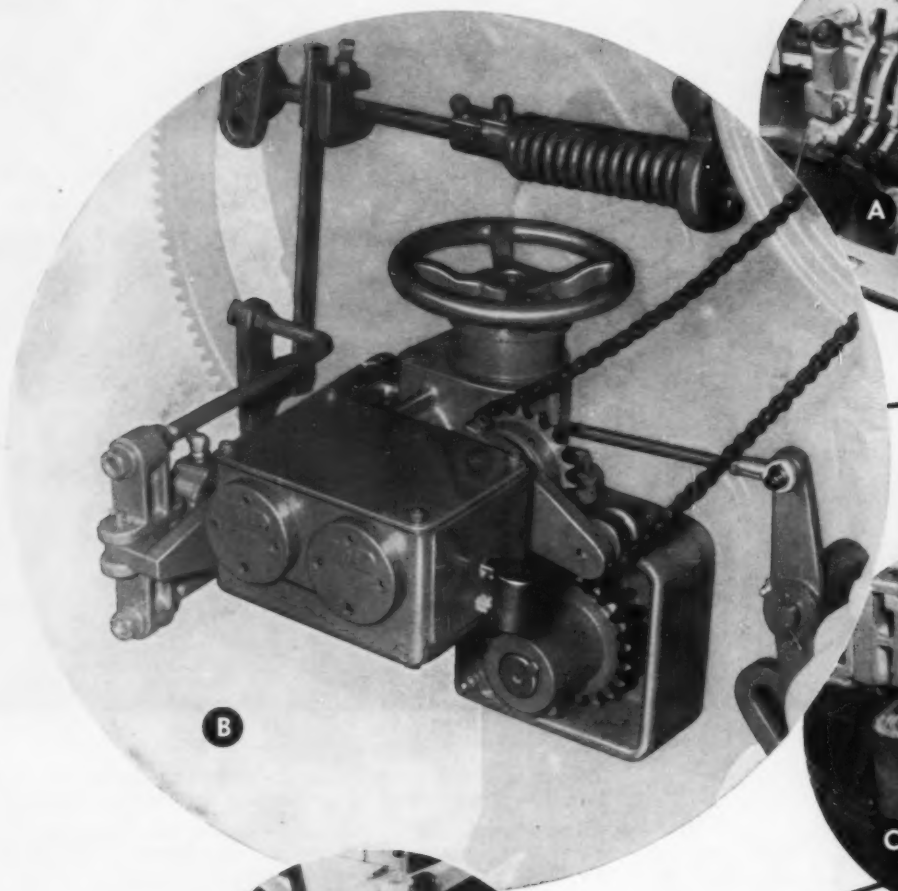
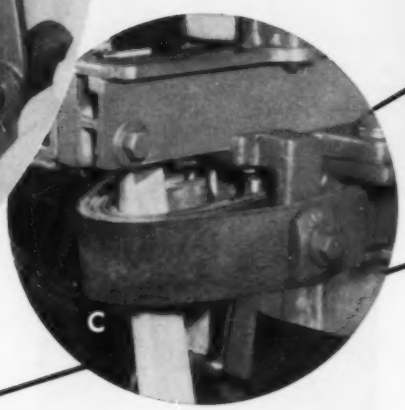
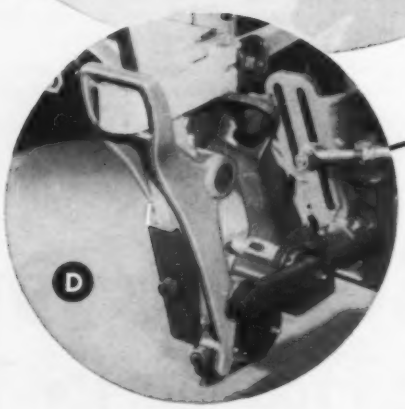
1305

# *Proven*
# Loom Developments . . .



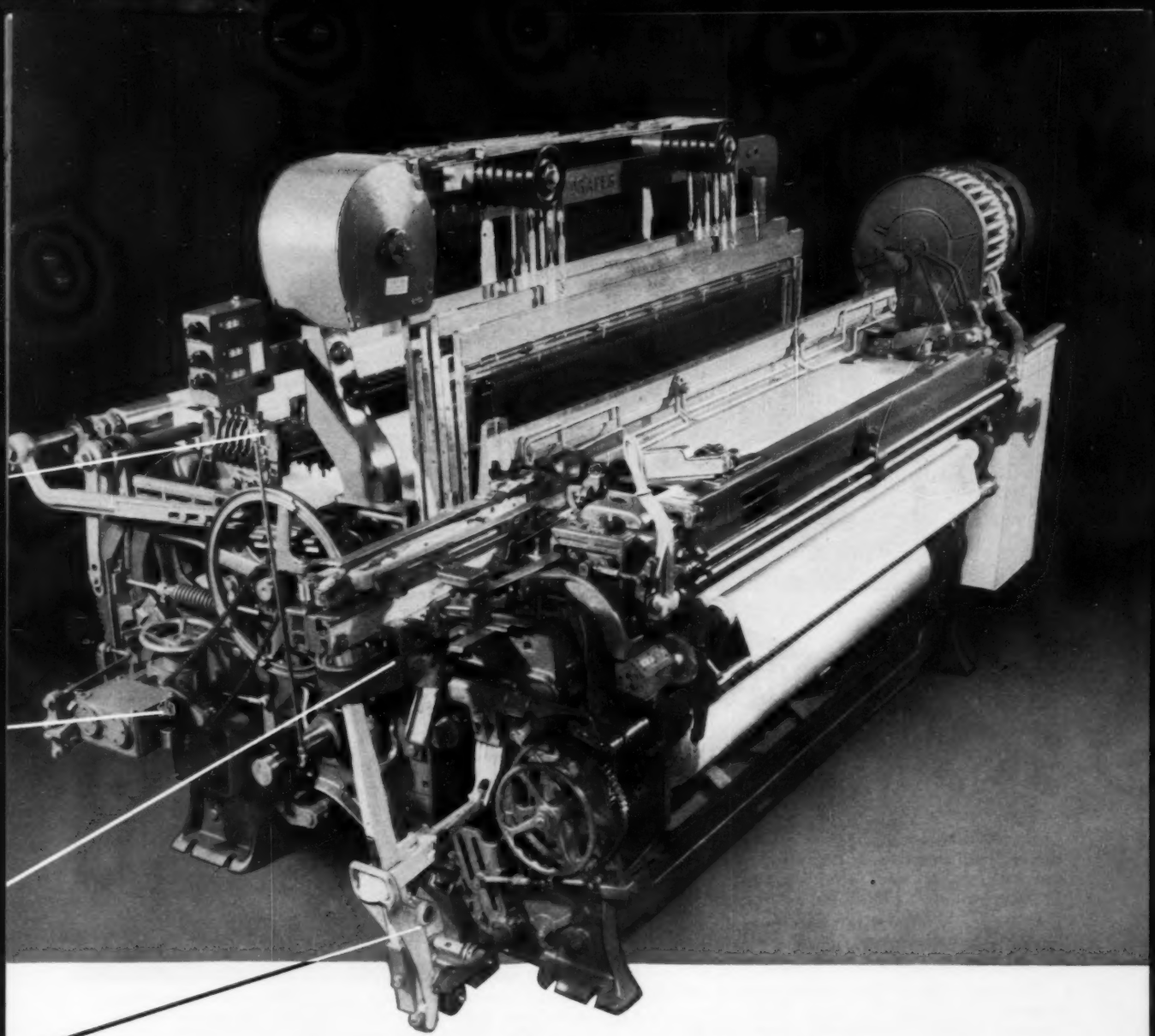



**A** K-A Electric Warp Stop with Serrated Blade provides a quick, positive means for locating a "down" drop wire.

**B** Draper Tru-Tension Let-off automatically controls yarn tension from full to empty beam with little or no adjustment needed, once the initial settings are established.

**C** Draper #14 Shuttle Check improves shuttle boxing. Simplified settings effect labor savings.

**D** Draper Link Type Parallel gives a uniform, controlled picking action . . . improves loom operation . . . reduces wear on pick motion and parallel parts.



# . . increase the versatility and efficiency of the Draper X-2 Model Loom

The Draper X-2 model loom, incorporating many new *tried and proven* loom mechanisms, contributes to greater weave room economy.

The new Tru-Tension Let-off controls yarn tension automatically, from full to empty beam. Cloth defects commonly attributed to the Let-off are eliminated and substantial savings are possible on critical weaves.

Other loom developments, including the Link Type Parallel, #14 Shuttle Check and the K-A Electric Warp Stop with Serrated Blade improve loom performance . . . reduce down time and costly repairs.

These and many other Draper loom attachments combine to increase the versatility and efficiency of the Draper X-2 model loom.

**DRAPER CORPORATION**

**HOPEDALE, MASS.**

Atlanta, Ga. • Greensboro, N.C. • Spartanburg, S.C.

# USE CEILING SPACE FOR TRANSPORTING MATERIALS

## SAVES FLOORS-SPACE-TIME

Dozens of textile mills have discovered that unused ceiling space can be put to profitable use by installation of overhead Cleveland Tramrail materials handling equipment.

Floor congestion is relieved by delivering materials overhead. Floor wear is greatly reduced. Floor space is saved.

The many usual floor hindrances do not impede Cleveland Tramrail. When transporting materials overhead there are no men, machines or other obstacles in the way. The path ahead is always clear and it is the best and most efficient route because it is carefully planned that way.

Let us demonstrate how you too can profit with Cleveland Tramrail for handling rolls, lap, beams, bales, raw stock, etc. No obligation, of course.

*(Above) It is easy to convey heavy rolls of cloth and place them into the hookers with this hand propelled carrier and electric hoist*

*(Upper left) Three rolls of cloth are usually carried at a time with the Cleveland Tramrail system to these calenders*

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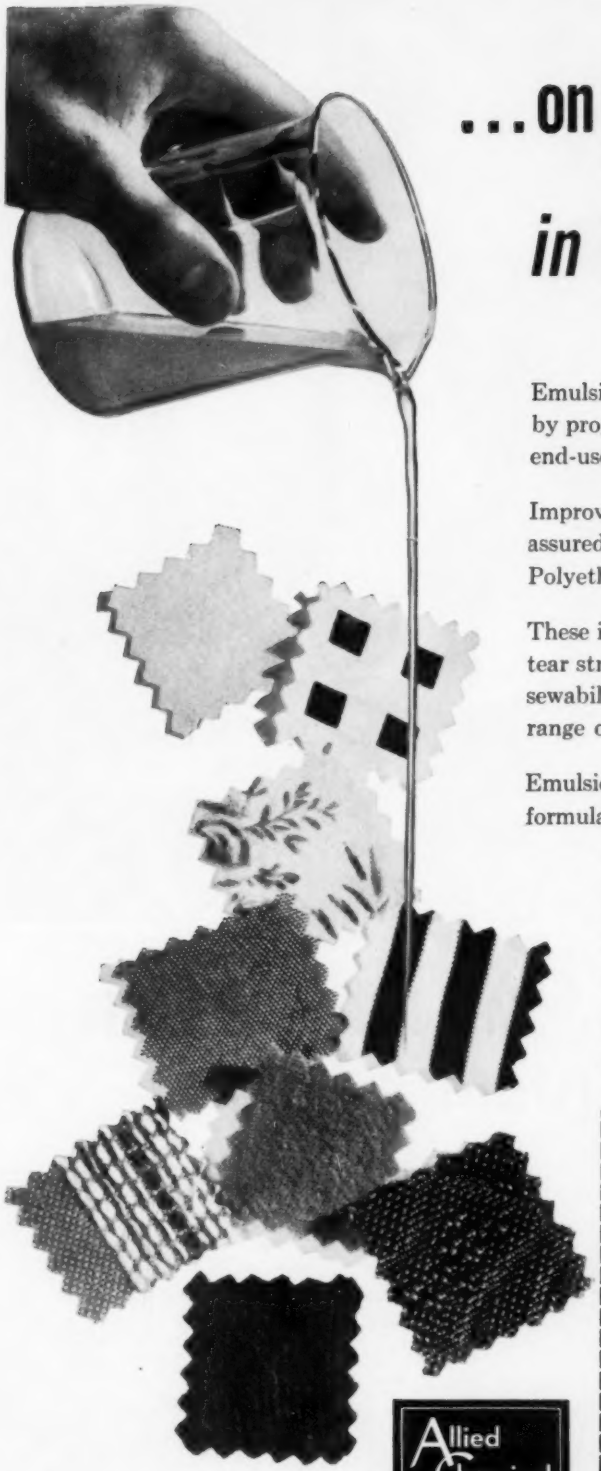
BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy

**CLEVELAND TRAMRAIL DIVISION**
THE CLEVELAND CRANE & ENGINEERING CO.
2861 East 287th Street, Wickliffe, Ohio

**CLEVELAND TRAMRAIL**
**OVERHEAD MATERIALS HANDLING EQUIPMENT**

# GOOD NEWS IS POURING IN



## ...on AC® Polyethylene in Textile Finishing!

Emulsifiable AC-Polyethylene 629 is now being used by progressive textile finishing plants for enhanced end-use fabric performance.

Improved and increased mechanical properties are assured when using Emulsions of this Polyethylene as a finishing agent.

These include: higher abrasion resistance, increased tear strength, reduced needle cutting, improved sewability, and better wash-wear finishes in a wide range of desirable hand properties.

Emulsions of AC-Polyethylene 629 properly formulated for textile uses will not retain chlorine; will not yellow whites; will not scorch at elevated temperatures; and will not affect dye shades or light fastness properties. Such emulsions are compatible with all common textile finishing agents.

Contact us for additional information on this new advance in textile finishing.

Allied Chemical

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I am interested in AC-Polyethylene 629 for finishing____

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Name_____

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Clear sparkling colors produced with more economical dyestuffs are among the advantages assured by use of TEN-O-FILM Starches.

# For a clear size that enhances **COLOR** use **TEN-O-FILM**® starches

For use with the new quick curing or polymerizing resins, you'll find no equal to TEN-O-FILM Starches.

Available in a range of fluidities to meet any required fabric stiffness, these unique starches retain their free-flowing characteristics at the lower temperatures employed in finishing.

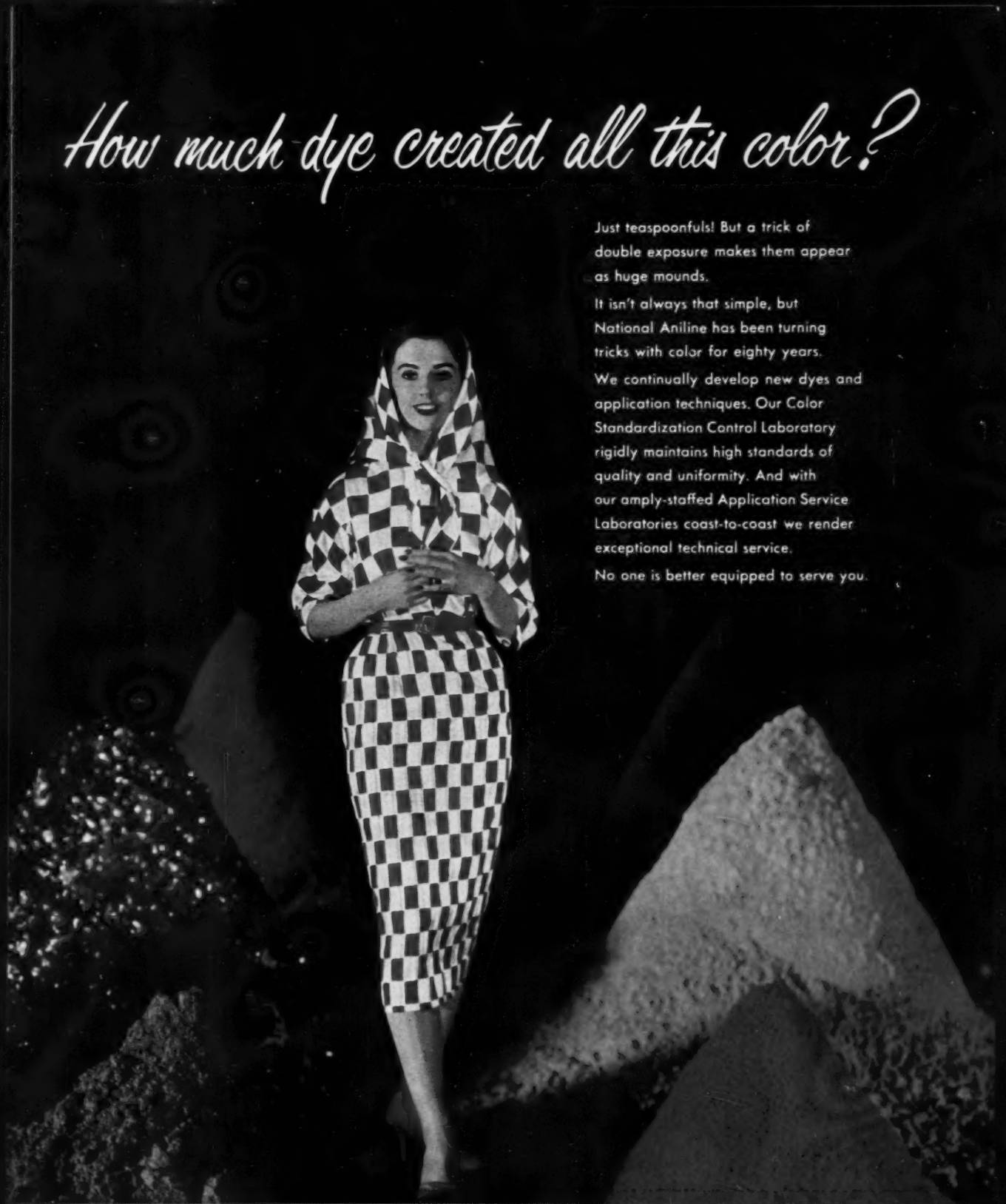
Also, because both sizing and desizing operations using TEN-O-FILM are conducted at lower temperatures, with "bleeding" thereby reduced, yarns can be dyed with more economical dyestuffs.

More information? Just contact our nearest sales office or write to:

**CORN PRODUCTS SALES COMPANY**
17 Battery Place, New York 4, N. Y.

Corn Products makes these famous starches for the TEXTILE INDUSTRY:
**EAGLE® · FOXHEAD® · GLOBE® · CLARO® · TEN-O-FILM® · GLOBE® Dextrines**

# How much dye created all this color?



Just teaspoonfuls! But a trick of double exposure makes them appear as huge mounds.

It isn't always that simple, but National Aniline has been turning tricks with color for eighty years.

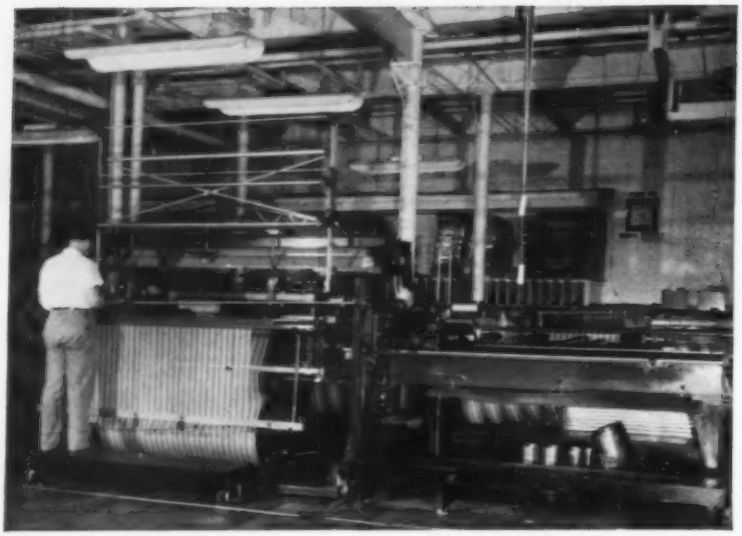
We continually develop new dyes and application techniques. Our Color Standardization Control Laboratory rigidly maintains high standards of quality and uniformity. And with our amply-staffed Application Service Laboratories coast-to-coast we render exceptional technical service.

No one is better equipped to serve you.

**NATIONAL ANILINE DIVISION** ALLIED CHEMICAL & DYE CORPORATION

40 Rector St., New York 6, N. Y. • Akron Atlanta Boston Charlotte Chattanooga Chicago Greensboro Los Angeles New Orleans Philadelphia Portland, Ore. Providence San Francisco Toronto

Allied Chemical



**Operator on the Barber-Colman Warp Drawing Machine is here shown drawing a fancy stripe pattern.**

At Avondale Mills' Bevelle Plant, Alexander City, Ala., the machine shown here has reduced drawing-in time from 8 hours or more per warp to less than 1½ hours. Most warps at the Bevelle plant range between 4,000 and 6,500 ends. Most cloth styles have 3, 4, or 5 harnesses. Approximately 50 styles are being drawn. Fabrics woven are tickings in plain and fancy stripes, twills, drills, denims, and drapery materials. Fabric constructions range from 65 to 112 ends per inch, average being about 90 ends per inch.

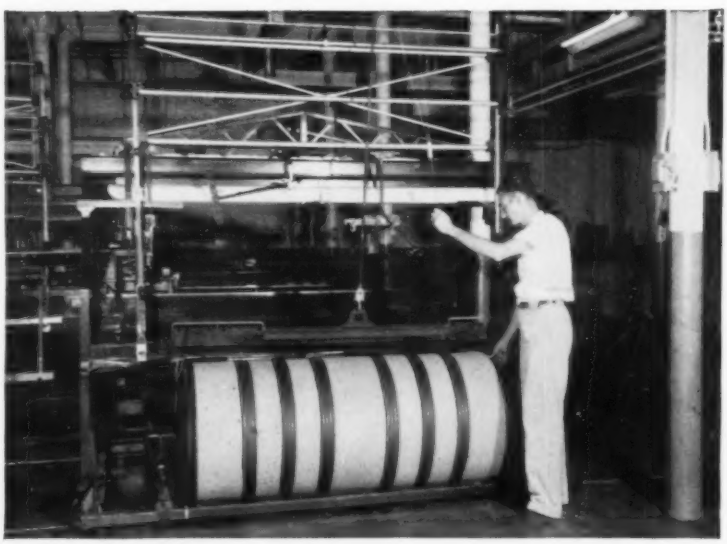
# BARBER-COLMAN

## WARP DRAWING MACHINE

## PAYS FOR ITSELF IN TWO YEARS

In addition to the savings produced by shortened time of warp-drawing, the machine has required less than expected maintenance, and the warps have proved to be of greater accuracy. An operator and two helpers keep the machine and its two trucks going (one truck is loaded while the other is in the machine). The machine shown is a Model 66 GSH, nominally rated for 66" warps, operating at a speed of 140 ends per minute, and capable of drawing 22 harnesses, 6 banks of drop wires, and reed.

**Helper in this picture is readying a second warp beam in the truck, which is then rolled up to the machine.**



**AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES**

**BARBER-COLMAN COMPANY**

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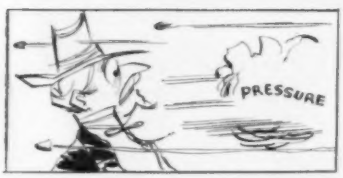
|---|---|---|---|---|---|
| Batliboi & Company<br>Forbes Street, Fort<br>Bombay, India | J. Rabasa<br>Isabel la Catolica 45-913<br>Apartado 7348<br>Mexico D.F., Mexico | Industria e Comercio de Maquinas S. A.<br>Avenida Rio Branco No. 50, Rooms 1201 3<br>P. O. Box No. 63<br>Rio de Janeiro, Brazil | Do-Yei Shoji Kabushiki Kaisha<br>Atlas Building (7th Floor)<br>11, Bingo-machi, 3-chome,<br>Higashi-ku,<br>Osaka, Japan | Associated Agencies<br>(M'cr.) Ltd.<br>Piccadilly House<br>11 Piccadilly<br>Manchester 1, England | Associated Agencies<br>(M'cr.) Ltd.<br>27 Kothari Building<br>Napier Road<br>Karachi 2, Pakistan |

Textile Industries for March, 1958

# News IN BRIEF

**South Union Target Again.** The South will feel continued organizing pressure from unions during this year, AFL-CIO president George Meany made clear at the union's recent Atlantic City meeting. The United Textile Workers Union, which was suspended early




in the convention, was later restored to grace. Mr. Meany suggested that it would be "the better part of wisdom" for UTW and Textile Workers Union of America to merge, and concentrate their combined efforts on the unorganized textile workers of the South.

**Mills to Lease Machinery?** Many cotton mills will be operating their plants with leased equipment within the next 10 years, according to William R. Heins, in a study for the Foundation for Management Research. Leasing will become increasingly important in industries whose ratio of fixed assets to tangible net worth is at least 30 per cent; in the cotton woven goods industry, it is 47 per cent.

**Standard Wool Bale Markings.** The Australian wool industry has adopted a standardized bale marking system, with 28 classifications for medium and large clips, and 20 for smaller. The best and finest of the merino clip will be marked "AAA M," with "AA M" and "A M" for the seconds and thirds, respectively. A "comeback" or crossbred clip will drop the "M" for merino, and be marked "AAA" or "AAA CBM," as applicable. For super wools, "SUP" will be used with the other markings. Some modifications will be used for the smaller clips.

**Textile Outlook.** Textile production rates are likely to remain at low levels in the early part of 1958. Reason: Textile customers are curtailing inventories. However, an upturn in sales and output later in the year is in prospect, due to seasonal requirements of customers. A more profitable and stable price structure over a period of time is likely. Industry leaders are gearing output to actual demand, in contrast to the industry's traditional policy of all-out production. Moreover, further liquidation of mills and the general adoption of a five-day week could give rise to better selling prices. — *Value Line Investment Survey.*

**More Show Space.** A 16,000-sq ft addition to Textile Hall, Greenville, S. C., will be ready in time for the Southern Textile Exposition, which is to be held October 6-10.

Knitted throw rug made by Malden Mills for Aldon Rug Mills is an Acrilan-dynel blend.

**Textile Men to Europe.** A tour of the major textile centers of Europe, including a stop at the World's Fair in Brussels, will be headed this summer by Dean M. E. Campbell of N. C. State College

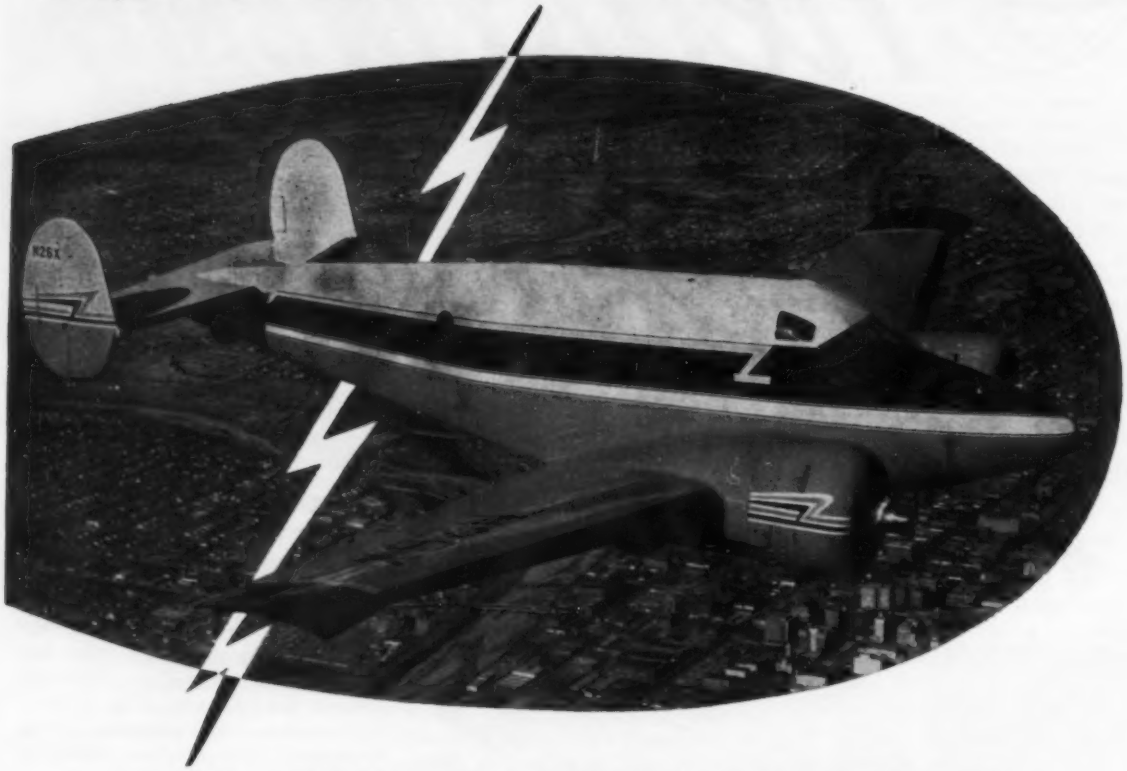
School of Textiles. The 22-day tour is open to textile men and their wives; tentative departure date is set for early July. Further information is available from Swissair, 1716 Fulton National Bank Building, Atlanta 3, Ga.

**Cotton Fabric Exports Up.** Cotton textile exports have improved since the raw cotton cost has been equalized on textiles exported. During the first ten months of 1957, 458.6 million square yards of cotton fabrics were exported, compared to 420.5 million square yards during the same period of 1956. During the ten-month period, exports of man-made fiber textiles decreased from 161.9 million square yards to 143.5 million square yards, emphasizing the importance of a competitive raw cotton price to U. S. mills.

**No More "Dry Goods."** "The term 'dry goods' has lost its significance in the retailing world today," said National Retail Dry Goods Association president Richard H. Rich, in announcing that the association will now be known as the National Retail Merchants

# now...

## Super 18 Executive Beechcraft



## with WEATHER RADAR

The finest Super 18 Beachcraft in the air. Equipment includes new RCA AVQ-50 radar, Geisse safety landing gear, complete lightweight all-weather radio.

*For information or demonstration call or write:*

# Southern Airways Company

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airfleet of the textile industry

Association.

**Textile Failures.** Failures in the textile mill products field totaled 93 companies, with liabilities of $8,810,000, in 1957, reports the Credit Clearing House of Dun & Bradstreet, Inc. This compares with 87 companies and $10,432,000 in 1956.

**Course on Colloids.** "Colloids and Emulsions" will be the subject of a series of lectures to be given at the Philadelphia Textile Institute on six successive Monday evenings, beginning March 3, from 7:30 to 9:30 P.M. Sponsor is the Delaware Valley Section, Amer-

## MERCHANDISING NOTES

**American Hotel Association** reports that only 12 of 178 hotel guests polled indicated a preference for white sheets and towels

over colored. When questioned, 157 guests stated a preference for color in their linen; the other 9 showed a "slightly negative" reaction to the colored articles.

**Bates Manufacturing Co.'s** Disciplined fabrics have again been selected by 20th Century Fox to appear in a fashion newsreel now showing across the country.

**Burlington Men's Wear Fabrics Co.** will present a $2,500 scholarship to Philadelphia Textile Institute for the son or daughter of a worker in the apparel industry in

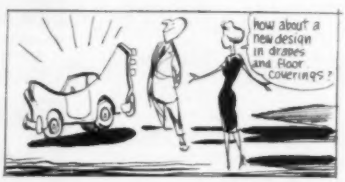
the name of the winner of a contest for the best answer to the question, "What sales strategy should the men's wear industry adopt to reverse the downward sales trend and increase unit sales?"

**Dan River Mills** has increased its 1958 advertising budget 50 per cent over the 1957 figure.

**National Cotton Council** estimates that half a million persons now rent all their household linens through America's 1200 linen supply services, rather than buying their own.

**Princeton Knitting Mills** have entered the floor covering field with a fluff-weight, high-pile rug of 100 per cent acrylic fiber, called "Pouff." Sales are running 80 per cent ahead of original forecasts, say Princeton officials.

**Sears, Roebuck & Co.'s** board chairman, T. V. Houser, addressing the annual meeting of the National Cotton Council, declared that style changes in cotton products are necessary to keep pace with items




like automobiles and television sets. Comparing the seven- to nine-year style cycle in the rug industry to the quick obsolescence in the automobile and appliance fields, he said, "It should be as important to change the draperies, upholstery, and floor coverings as to discard a refrigerator that still runs perfectly."

**Federal Trade Commission's** officials saw no humor in Glenoit Mills' recent ads which used such

lines as, "Glenoit Mills own the only herd of pedigreed Glenara in existence . . . from their pelts we create a heavenly fabric . . . looks like . . . and feels like real mink because its 'let out' like real mink." Glenara is an Orlon-dynel blend, so FTC says the joke was on the customer, who might think it was mink.

**Interwoven Stocking Co.'s** new cartons feature colorful surface designs and have year-around point-

of-purchase impact as gift packages. The old hand-tied-with-a-string package was abandoned after 73 per cent of retailers surveyed said the string was of no value.

**Kroehler Manufacturing Co.** is offering furniture upholstered in 21 different fabrics, including cotton prints, treated with Scotchgard stain repellent. They were introduced as a "first" at the recent Chicago Furniture Show.

**United Elastic Corp.** has announced a fully drycleanable synthetic rubber elastic webbing. The formulation incorporates an improved type of Neoprene, and is resistant to both perchlorethylene and Stoddard solvent, the two standard solvents used today in drycleaning plants in the U. S. and Canada.

**Virginia Maid Hosiery Mills, Inc.,** has announced a seamless version of its "Sole Secret" stockings (twin-thread dress sheer with a cotton sole).

**Goodyear Tire & Rubber Co.** has introduced the first bicycle tire of all-nylon cord construction.

# TRUST COMPANY OF GEORGIA

ATLANTA

## *Condensed Statement of Condition*

December 31, 1957

### ASSETS

| | | |
|---|---|---|
| Cash on Hand and Due From Other Banks | | $ 56,063,753.11 |
| United States Government Obligations | $34,113,050.98 | |
| Municipal Bonds | 8,259,201.00 | |
| Other Securities | 398,241.00 | 42,770,492.98 |
| Loans and Discounts | | 87,894,502.66 |
| Overdrafts | | 31,743.15 |
| Banking Houses | | 3,206,964.24 |
| Customers' Liability on Acceptances and Letters of Credit | | 1,213,964.32 |
| Accounts Receivable and Accrued Interest | | 1,311,499.03 |
| Prepaid Expenses and Other Assets | | 298,900.83 |
| TOTAL | | $192,791,820.32 |

### LIABILITIES

| | | |
|---|---|---|
| Capital | $ 4,090,000.00 | |
| Surplus | 6,310,000.00 | |
| Undivided Profits | 6,485,878.18 | $ 16,885,878.18 |
| Reserve for Contingencies | | 1,121,938.18 |
| Reserve for Expenses, Taxes, etc. | | 1,113,955.38 |
| Acceptances and Letters of Credit | | 1,213,964.32 |
| Accounts Payable, Unearned Interest, etc. | | 1,477,173.61 |
| Deposits (*Including U. S. Treasury Tax and Loan Accounts) | | 170,978,910.65 |
| TOTAL | | $192,791,820.32 |

*U. S. Treasury Tax and Loan Accounts . . $ 3,377,787.61

Assets Pledged to secure Public Funds (including U. S. Treasury Tax and Loan Accounts), Trust Balances and Other Liabilities as required by law . $ 20,002,618.62

MEMBER: FEDERAL DEPOSIT INSURANCE CORPORATION

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Ivan Allen Co.

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President
Grantville Mills

CASON J. CALLAWAY
Farmer

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Asa G. Candler, Inc.

JAMES V. CARMICHAEL
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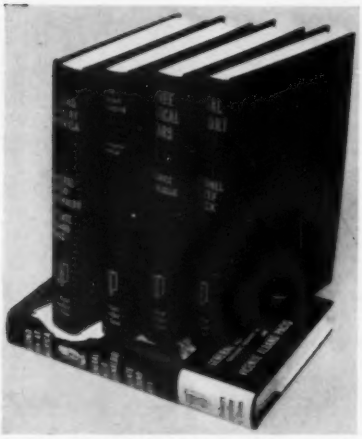


Binding of "Makers of History" series published by Robert Speller & Sons includes aluminum decorative threads. The fabric was woven by Kendall Mills and A. D. Smith Co.

ican Association of Textile Chemists and Colorists. Application for attendance should be sent to the Section's Educational Committee at P. O. Box 5025, Philadelphia 11, Pa. Cost for the series is $12, plus textbook.

**Low Prices Help Wool.** Wool has won a round in its battle for markets with the man-made fibers, because of current lower wool prices, reports Merrill Lynch, Pierce, Fenner & Smith. Although interfiber competition is only partly decided on a price basis, lower wool prices usually have a favorable effect on consumption. Price considerations are more important abroad than in the U. S., the report said.

**Cotton Improvement Contest a Success.** A contest sponsored by the Alabama Textile Manufacturers Association, in which awards are given for outstanding one-variety cotton community performances in Alabama, has been successful again this year "despite a dismal cotton season, boll weevils, the Soil Bank, and cotton allotments." Awards given since the program was initiated twelve years ago now total more than $43,000.

**Kenaf As Jute Substitute?** Another attempt to establish a successful kenaf fiber industry, this time in Cuba, is expected to get under way soon (kenaf is a bast fiber from a plant resembling the hollyhock). The Cuban electric power company has had an extensive survey made of the potential for kenaf as a competitor of jute in such uses as bagging, mats, and backing for tufted carpets. With most technical problems in the preparation of the fiber solved or with solutions in sight, large-scale production in Cuba is likely.

## Define "wash and wear" products in understandable terms, finishers told

■ THE NATIONAL Association of Finishers of Textile Fabrics is prepared to cooperate in a constructive program in the field of terminology and criteria for "wash and wear" finishes, J. Marshall Cole, the retiring president, stated in his report to the members during the organization's recent 44th annual meeting at the Waldorf-Astoria Hotel in New York City.

The Cold Spring Bleachery official indicated that the finisher has an obligation to define his "wash and wear" product in such terms that converter, cutter, retailer, and consumer can understand them, and also to produce consistently a product that lives up to this definition from the standpoint of consumer satisfaction.

"Plant operations in the cotton textile finishing industry during 1957 were marked by an acceleration of the decline in production that started almost two years ago," reported Joseph E. Hoesl, the Association's secretary. As a whole, he said, the industry produced 7.4 billion yards of bleached, dyed, or printed cotton goods during the year—a drop of 7.5 per cent from the 1956 level.

A breakdown of this total in the accompanying table shows the number of yards finished by each of the principal types of finishing processes. Also, figures for each year back to 1953 are presented so that comparison can be made. The production level in 1955 of 8.1 billion yards was the high point in the history of the industry.

The general decline in finishing activity during the past two years has taken its toll on the industry, the Association members were told. In this period 13 cotton finishing plants have been reported to have closed down and liquidated. Nine of these plants were engaged in printing, and 79 print machines were taken out of production.

At the year end commission finishers reported that finishing charges remained depressed and unprofitable except for certain quality finishes which have remained firm.

**COTTON BROAD WOVEN GOODS FINISHED**
*(Million of linear yards)*

| | 1953 | 1954 | 1955 | 1956 | 1957* | Per cent change 1957 vs 1956 |
|---|---|---|---|---|---|---|
| Bleached & White Finished | 3,355 | 3,180 | 3,346 | 3,535 | 3,286 | — 7.0 |
| Plain Dyed & Finished | 2,454 | 2,308 | 2,671 | 2,572 | 2,508 | — 2.5 |
| Printed & Finished | 1,820 | 1,919 | 2,126 | 1,933 | 1,645 | —14.9 |
| Total | 7,629 | 7,407 | 8,143 | 8,040 | 7,439 | — 7.5 |

(*) Data for 1957 estimated; other data from Bureau of Census

# Using Salt Efficiently

by INTERNATIONAL SALT COMPANY, INC.

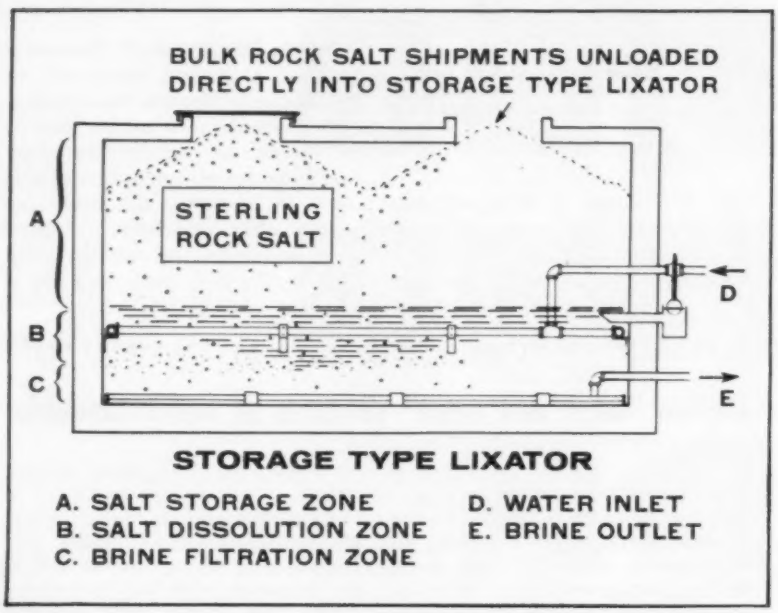
# Producing Crystal-Clear Brine at Lowest Cost—by Self-Filtration

Today, more and more companies are using a foolproof brine-making process that produces crystal-clear brine from rock salt, *without using supplemental filter beds or other filtering devices.* This process takes place in the "Sterling Lixator," a rock-salt dissolver developed exclusively by International Salt Company. Operating on International's principle of self-filtration, the Lixator produces a rock-salt brine so high in purity and so brilliantly clean and clear that it can be used in many operations formerly thought to require highly refined evaporated salt.

**Here, briefly, is how self-filtration works in the Sterling Lixator:** A Lixator is filled with Sterling Rock Salt. Water, admitted near the top, dissolves salt as it flows downward. While flowing down, the brine made in this way becomes fully saturated, and can dissolve no more salt. Still flowing down, this brine is *completely filtered* by the salt-crystal bed in the bottom portion of the Lixator. Thus, the Lixate Brine drawn off through a discharge pipe at the bottom of the Lixator is clean, pure, crystal-clear—and the only source of power used is gravity, which costs nothing!

**Other Lixator advantages.** In addition to this superbly clean, fully saturated Lixate Brine, a number of other advantages are yours, when you use a Lixator:

- The Lixator permits salt storage and brine making at one location most convenient to the point of salt entry. *Pipes* deliver brine to points of use.
- Because Lixate Brine is piped to points of use, the work of moving dry salt from storage piles to other plant locations is eliminated. This can produce substantial savings in labor.
- The Lixator *automatically* controls salt feed, water feed, and brine discharge. Rapid, uniform brine production is maintained constantly, because in the Lixator there is no bridging, caking, or channeling.




**The Storage Lixator** — designed for larger operations. This is a combination salt storage tank and dissolving tank. On delivery, rock salt is unloaded directly into the Storage Lixator. The rest is automatic.

**Many types of Lixators are available** from International Salt Company. In addition to Storage Lixators, there are Silo Lixators and Sterling Model Lixators—in numerous designs to suit any plant layout. And every Lixator operates on the economical self-filtration principle.

**For expert advice** on the particular Lixator type that will do the best job for you, phone or write the nearest district sales office, or write to us direct. One of our sales engineers will gladly show you how this remarkable brine-making equipment can help you use salt most efficiently and economically.

Using salt efficiently in its many industrial applications calls for technical knowledge and experience. International Salt Company has both. Plus a continuing program of research and development in salt. These things can be put to work for you, in your plant, to help you get the most out of the salt or brine you use.

* * *

**INTERNATIONAL SALT CO., SCRANTON, PA.**

*Sales Offices:* Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; Memphis, Tenn.; and Richmond, Va.

Service and research are the extras in **STERLING SALT**

PRODUCT OF INTERNATIONAL SALT COMPANY, INC.

Front of Efird's department store in Charlotte was decked with hundreds of yards of fabrics for the salute to the textile industry

News in Brief

# Salute to the textile industry

*Charlotte department store shows Carolinians importance of industry to the area*

THE TEXTILE industry, largest single factor in the economy of the Carolinas, was saluted by Efird's Department Store of Charlotte, N. C., from January 6 through January 18.

As originally conceived by Henderson Belk, vice-president of Efird's, the exhibition was to be on a modest scale. It was originally planned only that a loom would be placed in the window and in operation. From this small beginning the mills of the textile industry began filling the six floors of the store. Seen in operation were a hosiery machine, a gingham loom, a hand-operated loom from Penland School, and the manufacturing of Acrilan, among many others.

Hall's Textile Machinery installed a complete cotton spinning mill, starting with the field of cotton and processing to the yarn at the 5th Street garden entrance. The unusual and famous Springs bed, complete with air conditioner, television, radio, and telephone all built in, was on exhibit.

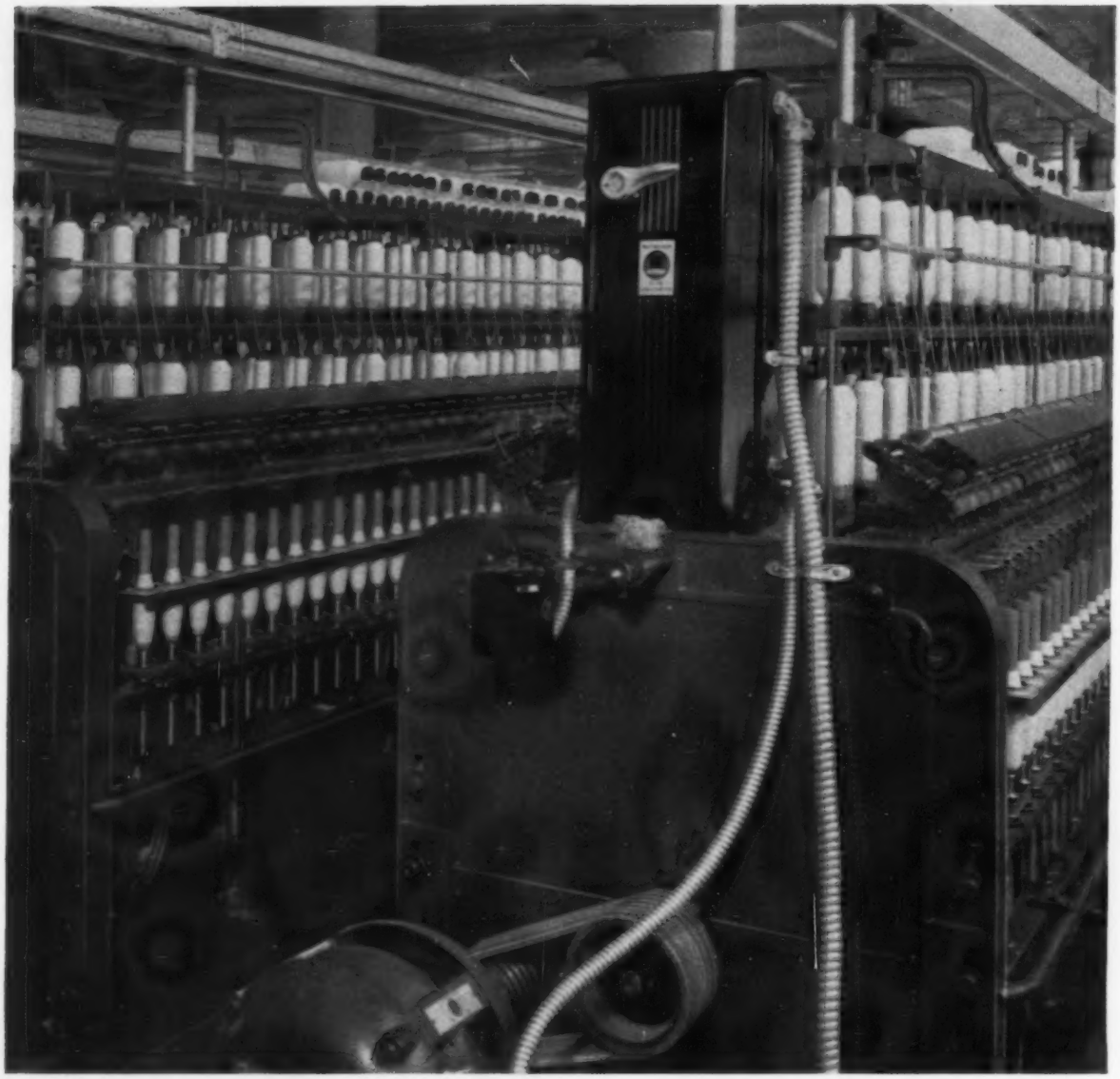
Mr. Belk said that the industry wholeheartedly joined in the exposition.

The value of cotton textile products manufactured in North Carolina amounts to about two and a half billion dollars annually, making the Tar Heel state the leading textile producer in the nation. The North Carolina textile industry employs more than 234,000 persons out of a total of 452,000 engaged in manufacturing of all kinds. The industry's annual payroll in North Carolina is about 650 million dollars, the largest single industry payroll in the state.

Textiles are also the most important single industry in South Carolina, where the industry has invested 610 million dollars. The value of the manufactured product of the South Carolina textile industry is almost two billion dollars. Approximately 132,000 South Carolinians are employed in the textile industry, and they share an annual payroll of about 440 million dollars—five times the amount it was 20 years ago.

Nearly every business establishment in the Carolinas is affected by the operation of the textile industry, and Efird's believed the people of the two states wanted to see the processes that sustain this most important industry. Nowhere else has the public seen so many of the phases of textile production under one roof.—*Staff report*

Rope braider loaned by Shuford Mills, Hickory, N. C., was one of many textile machines in operation in the store during the exhibit.



## Preference Based on Performance

After 71 years of service to the Southern textile industry, Standard Oil products continue to be *first* in point of popularity. There's only one answer. To stay first your product must be *dependable*, your service *superior*.

Standard Oil was first to offer special lubricants for textile machinery, and for over half a century these have been constantly improved to meet changing needs. Wherever there are moving parts—from one end of your mill to the other there are special types of Standard Oil lubricants to afford maximum protection.

STANDARD OIL LUBRICANTS

**STANDARD OIL COMPANY** (Kentucky)

# Non-woven volume will double in 3 years

*textile manufacturing and marketing men are told*

by Stephen I. Rudo*
*Director of research*
*Werner Textile Consultants*

■ PRESENT indications are that non-wovens will emerge as a new industry. Its future potential and implications will affect not only the textile, but also the paper, chemical, plastics, and rubber industries.

Based on past performance alone, the future of non-woven products, also called bonded fabrics, is indeed bright. The entire non-woven industry, commercially speaking, is only some 10 years old, and yet in this relatively brief period production volume has grown from practically zero to over 90 million pounds in 1957.

The yearly consumption value at the factory sales price level has already reached 100 million dollars. The number of manufacturers involved in the production of non-woven fabrics is now between 25 and 35, depending on how broad or narrow our definition of non-woven is.

The trend of this development and the great potentialities of bonded fabrics indicate that within the next three years the production and sales volume will double.

Even with this tremendous growth, it is inconceivable that a very large percentage of textile production will be replaced by non-wovens. At present, the percentage of all non-wovens produced is only 1½% of the entire textile consumption. This, according to our estimates, will rise to 3% within the next three years and in the more distant future, even to 5%.

*Present End Uses.* Let us review briefly the present end uses of non-wovens in fields where they have become well established:

| End Use Group | Non-Woven Fabrics: Present Volume (million lb) | Non-Woven Fabrics: Estimated Volume for 1960 (million lb) | Fabrics—All Types: Present Total Volume (million lb) |
|---|---|---|---|
| Industrial fabrics | 55 | 85 | 1,500 |
| Home furnishings, including sanitary textiles | 20 | 55 | 2,300 |
| Apparel uses | 15 | 60 | 2,600 |
| TOTAL | 90 | 200 | 6,400 |

In the industrial field: filters, insulation against heat and electricity, wiping cloths, reinforced plastics, padding, backing for coated fabrics, luggage and automotive industries.

In the household and sanitary markets: napkins, table cloths, towels, draperies, backing for upholstery, bed pads, dressings, sanitary products, diapers and bibs.

Finally, in the apparel markets, which is now relatively the smallest in the non-woven field, we find such established products as: interlining, padding, petticoats, aprons, skirts, etc.

This list comprises non-wovens of both the disposable and non-disposable types. Non-disposables have the advantage of higher unit sales price and utilization of the newest synthetic fibers which can be engineered for specific performances. Disposable non-wovens offer larger volumes and utilization of lower priced fibers and waste fibers in general.

*New Uses Seen.* We feel that there are equally great potentials for increased utilization in the fields of both disposable and non-disposable products.

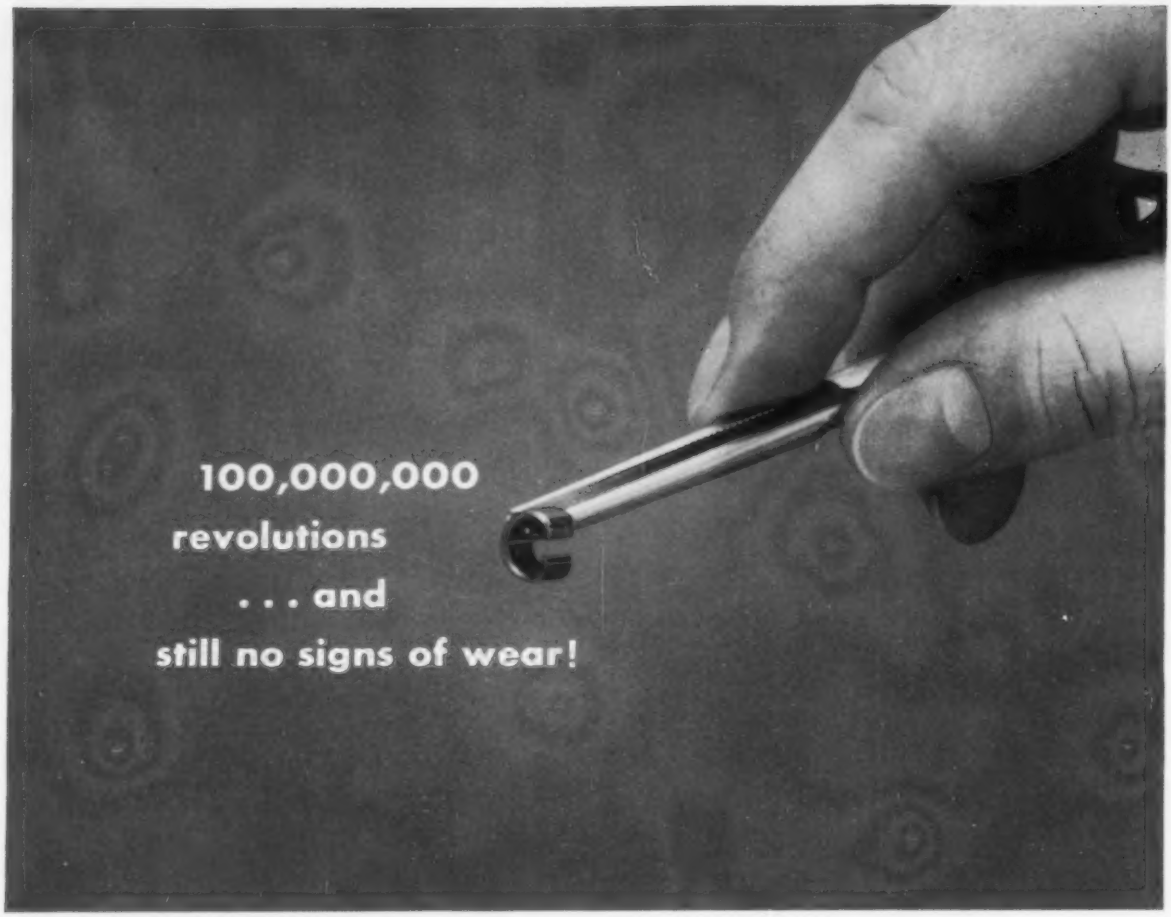
New products envisioned for the near future and now in the process of research or in the pilot stages are: leather type articles for the shoe industry, upholstery and bookbindings, disposable work clothing for medical and industrial applications, printed materials for outerwear uses, etc. The most urgent problems to be solved are how to impart fashion and style to non-woven products; how to engineer better seam strength, heat sealing, softer hand, and controlled reproducible quality.

In the *distant* future, it is conceivable that we will have the disposable shirt or even suits. Sewing operations may well be practically eliminated. Spraying and molding techniques may be introduced. Such items as sheetings and printcloth fall within the realm of possible future non-woven development. Furthermore, the use of disposable non-woven apparel may become mandatory in this coming age of space travel and atomic energy.

There is another reason that we feel non-wovens have a bright future. Bonded fabrics lend themselves more than any other textile material to engineering for end-use and to automation. With some imagination, it is possible to develop a mill where on one end fibers and resins are dumped into a hopper, and on the other end a finished non-woven fabric, or even a ready to wear article of apparel emerges.

The growth and profitability of the non-woven field will be directly proportionate to the promotion and marketing effort put behind it.

*This is a report on "The Future of Non-Woven Fabrics" which was presented by Mr. Rudo when he served as a panel member during the recent non-woven symposium sponsored by the Textile Division of the New York Board of Trade.

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# AN EXECUTIVE Views

THE NEWS IN TEXTILES

## Cotton industry's approach to gin damage

*The following remarks by Claude L. Welch, Director of the Division of Production and Marketing, National Cotton Council of America, are from a letter to the editors commenting on the gin-damage problem referred to in the article, "How to Ruin Cotton," which appeared in the November, 1957 issue of* TEXTILE INDUSTRIES.

WE FEEL that the problems so forcefully presented by the author of the article which you published are not insoluble, and that if all segments of the industry pull together on these problems, as they have so often on other matters, much of the difficulty which some mills are now experiencing can be alleviated.

The current troubles are one of the natural consequences of the revolutionary developments in the production and harvesting of cotton. I think most people will agree that without mechanization the cotton industry cannot long remain competitive. The gins, and gin practices, have come through certain evolutionary changes necessitated by the more roughly harvested cotton which they must handle. It might be well to point out that the mills themselves have stepped up their spindle speeds, their package sizes, and their job loads, so that today more is required of cotton in terms of spinning performance than ever before. It is not surprising that all of these developments, coming in a relatively short span of years, have produced some by-products which may be regarded as losses rather than gains.

The Council has been working actively on this matter in cooperation with the ACMI and the U. S. Department of Agriculture, and while we certainly cannot promise any immediate answer to these problems, we do believe that a program has been started which, if supported by all interested segments of the industry, provides a logical and direct attack which will eventually yield the desired results.

THE ABOVE GROUPS recognize and have so stated that the basic problem is that the grade and staple of cotton no longer reflect its true spinning characteristics, at least after certain ginning practices and on the basis of the average classing which it receives. The real solution, therefore, lies in some method of better evaluating the spinning value of cotton so that both premium and inferior qualities can properly be recognized in the price of cotton, and so that mills can select with greater confidence cotton which adapts to their particular operations.

On this basic premise the Industrywide Committee on Cotton Quality, meeting in Memphis last November 8, approved a three-point program of fact finding, research, and education which will be pressed vigorously by the Council, ACMI, and the USDA, working with all segments of the industry.

The fact finding studies will include commercial scale spinning-ginning tests, one of which, involving 48 bales, has already been put under way this season. As another move in this direction, a top-level USDA and industry committee has been established to study the feasibility and desirability of a pilot spinning mill which can carry on this fact finding work from year to year. From such studies information on the economics of various ginning practices, from the producers', ginners', and the spinners' viewpoint, can be better established. At the same time the physical influence of these practices on cotton itself can be studied by the research people.

Concurrently, an expanded program of research is being pressed, chiefly on instrumentation and the exploration of various means to detect and measure damage to raw cotton. Research of this nature is going forward in both public and private agencies.

Finally, the educational programs conducted by the Council, extension services, ginner associations, and other groups will be buttressed by factual and authoritative information as it comes from the testing and research phases of this program.

IT IS quite possible that the approach outlined above may be criticized by some because it seems too long-ranged. Obviously, it cannot supply an immediate solution to the problems presented in the article which you published. On the other hand, key representatives of the ACMI Cotton and Research Committees who met with the Council and the USDA, as well as

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**Economy**
**Quality**

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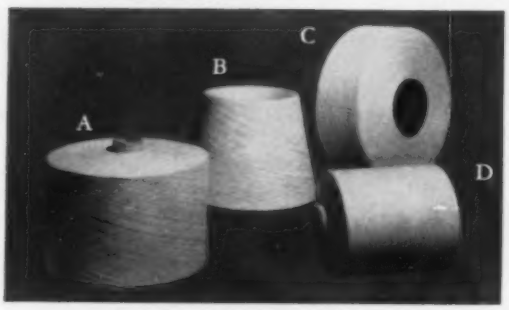
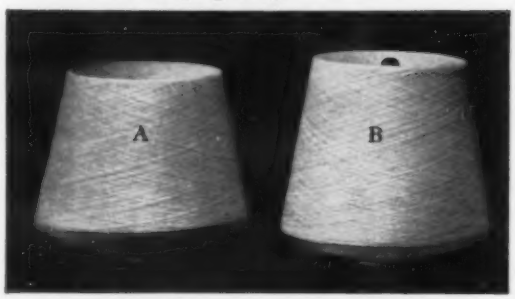



A — Warping cone
B — Knitting cone
C — Short traverse cheese
D — Dye package




A — 6″ traverse cone. B — 7″ traverse cone holding 10% more yarn.

Top, side and bottom of Model 102 knitting cone, showing convex base, perfect shape and uniform wind.

801-7

**Flexibility** — Will handle any count (except coarsest) or type of spun yarn — soft twist as well as hard twist • Any angle of wind from 9° to 18° • Any taper commonly used • Knitting cones, warping cones, dye packages, or short traverse cheeses (when machine is properly equipped) • Conditioned yarn as well as dry yarn — even dye packages which are damp in the middle • Density of packages easily regulated.

**Economy** — Operating cost ⅓ less than that of obsolete machines because of high winding speeds, self threading tension devices, easy doffing (package holder swings out), empty bobbin conveyor discharging into standard size truck, 7″ traverse packages (if specified) holding 10% more yarn, negligible repair costs (as low as $10 per yr. per 100 spindles), low maintenance (any competent fixer can take care of it).

**Quality** — The Foster Open Wind Cone is standard for the knitting industry • Automatic inspection of yarn through slub catching attachment • Any degree of yarn conditioning desired • Convex base cone prevents underwinding and nipping • Ribbon breaker (originated by Foster) prevents ribbon wind • Idler shell on drum prevents chafing • Adjustable angle of wind assures properly wound cones that will hold their shape in transit and deliver efficiently at knitting machine • Minimum tension on soft twist yarns minimizes breakage.

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with the Industrywide Committee on Cotton Quality, recognizing that this matter definitely has two sides, felt that this approach was the most fair and direct one which could be made, and the one which would receive the greatest support and produce the most satisfactory results.

This is not intended to be an answer to the article in your November issue, but simply a comment on this subject. If the program which I have outlined moves forward, we will hope to have more extensive reports of progress, and we will also urge that these be made available to the readers of TEXTILE INDUSTRIES.

► *After the author of the November article on gin damage read the comments (in the January issue) of the "ex-mill man" who is now in the gin machinery business, he wrote as follows:*

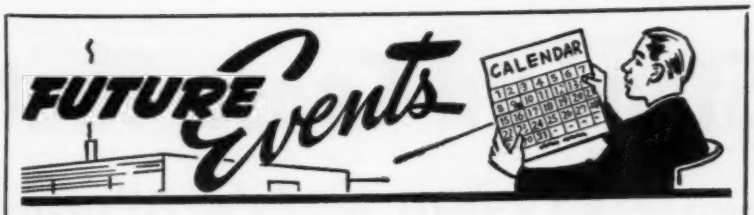
THE EDITORS:

. . . Just as every farmer knows that a bumble bee can fly regardless of what some more or less scientist may think, every cotton mill man knows that a licker-in damages cotton. . . .

A licker-in is a good cotton cleaner if you are simply interested in the amount of trash that can be taken out of the cotton and don't care much about what is left in it. Every carder knows this, and carders as far back as anybody can remember have been experimenting with all kinds of speeds and settings and tooth shapes on their lickers-in to try to reduce the damage to the stock as much as they can.

The Shirley Analyzer referred to in your correspondent's article is undoubtedly used by several hundred textile mills and laboratories, and anyone using this machine who also operates a cotton mill knows that the Shirley Analyzer absolutely ruins cotton for spinning purposes.

I understand that the Shirley Institute has built such a machine as a cotton cleaner, and that several American mills tried it, but that no American mill was able to use it. Several big American mills did try the saw-type lint cleaners when they first came out, but everyone that I know any-




| Date | Event | Location |
|---|---|---|
| Mar. 6-7 | Textile Quality Control Association | Poinsett Hotel Greenville, S. C. |
| 13-14 | Southern Textile Methods & Standards Association | Clemson House Clemson, S. C. |
| 13-14 | AIEE Textile Electrical Conference | Georgia Tech Atlanta, Ga. |
| 13-14 | Textile Research Institute annual meeting | Hotel Commodore New York City |
| 18-21 | A.S.T.M. Committee D-13 spring meeting | Sheraton Park Hotel Washington, D. C. |
| 20-21 | ASME Textile Engineering Conference | N. C. State College Raleigh, N. C. |
| 28 | Hudson-Mohawk Section AATCC | Johnstown, N. Y. |
| Apr. 10-12 | American Cotton Manufacturers Institute annual meeting | Hollywood Beach Hotel Hollywood, Fla. |
| 12 | Southern Textile Overseers Association | Greensboro, N. C. |
| 16-18 | Alabama Textile Manufacturers Association annual meeting | Hotel Buena Vista Biloxi, Miss. |
| 19 | Southeastern Section AATCC | A. P. I. Auburn, Ala. |
| 19 | Mid-West Section AATCC | Netherland Hilton Hotel Cincinnati, Ohio |
| 19 | Textile Operating Executives of Georgia Carding & Spinning Discussion, 9:00 A.M. | Georgia Tech Atlanta, Ga. |
| 21-22 | National Association of Hosiery Manufacturers annual meeting and Hosiery Industry Conference | Hotel Roanoke Roanoke, Va. |
| 23 | The Textile Institute annual meeting | Nottingham, Eng. |
| 23-26 | Cotton Manufacturers Association of Georgia | Boca Raton Hotel & Club Boca Raton, Fla. |
| 24-26 | Phi Psi Textile Fraternity annual convention | Philadelphia, Pa. |
| 24-26 | Delta Kappa Phi Fraternity national convention | New Bedford Hotel New Bedford, Mass. |
| 25-26 | Piedmont Section AATCC | Washington Duke Hotel Durham, N. C. |
| 29-30 | Institute of Textile Technology Technical Advisory Committee and Board of Trustees | ITT Charlottesville, Va. |
| Apr. 30-May 1 | The Fiber Society | Clemson House Clemson, S. C. |
| May 1 | Underwear Institute annual meeting | Hotel Biltmore New York City |
| 3 | Alabama Textile Operating Executives Slashing & Weaving Discussion—9:30 A.M. | Thach Auditorium Auburn, Ala. |
| 6-8 | Canadian Textile Conference | Queen Elizabeth Hotel Montreal, Que., Can. |
| 19-24 | National Cotton Week | |
| June 5-7 | Tufted Textile Manufacturers Association annual meeting | Daytona Plaza Hotel Daytona Beach, Fla. |
| 19-21 | Southern Textile Association annual convention | Grove Park Inn Asheville, N. C. |
| Sept. 11-12 | Combed Yarn Spinners Association annual meet | The Cloister Sea Island, Ga. |
| 25-26 | Northern Textile Association | Wentworth-by-the-Sea Portsmouth, N. H. |
| Oct. 1-2 | Chemical Finishing Conference | Washington, D. C. |
| 6-10 | Southern Textile Exposition | Greenville, S. C. |
| 15-25 | International Textile Machinery Exhibition | Belle Vue Manchester, England |
| Oct. 30-Nov. 1 | AATCC National Convention | Hotel Conrad Hilton Chicago, Ill. |

# Standard-Coosa-Thatcher

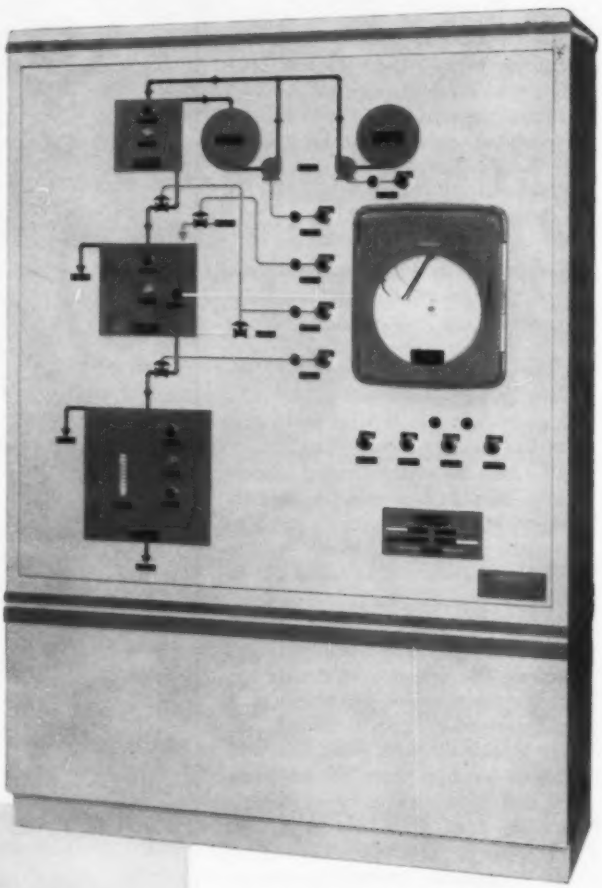
## saves $13,000 in Acid Dilution Process!

### ...with Foxboro Concentration Control

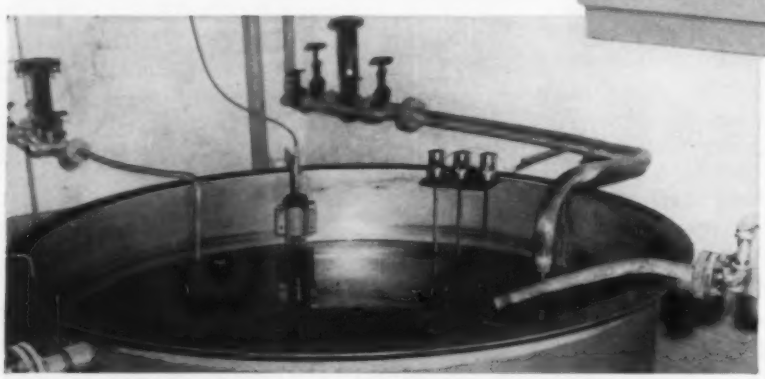
In only one year of operation at Standard-Coosa-Thatcher, the cost of Foxboro Acid Dilution Control, pumps and tanks included, was completely written off through savings in processing costs. The continuous, completely automatic Foxboro System enabled this company to change from carboy lot purchases of sulfuric acid to economical tank car lots. Resultant savings in acid costs, handling costs, and consumption totaled $13,000!

Heart of the Foxboro System is a Dynalog Concentration Recorder-Controller with its sensing cell remotely located in the cutting tank. Desired strength (in % acid) is merely "set" at the controller and then the system automatically provides a continuous supply of dilute acid — at a uniformity beyond expectation. *Danger from acid burns is completely eliminated.*

The Foxboro Conductivity Method of Control has been the economical answer to solution concentration problems throughout the textile industry . . . in souring, bleaching, carbonizing, and other operations. Find out how this modern method can save you money. Write for full details. **The Foxboro Company, 483 Neponset Ave., Foxboro, Mass., U.S.A.**



Compact Control Cabinet located on another floor from the "cutting" tank shows every stage of the process graphically in color on the panel . . . warns of abnormal conditions. Note level gauge in bottom storage tank in panel diagram.



The "cutting" tank in which commercial 66° Be acid is diluted to desired concentration. Note conductivity cell (next to level probes), air mixing, water and acid feed lines. (This is middle tank in flow diagram on cabinet panel.)

**FOXBORO**
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**Textile Process Control Systems**

thing about condemned them after trial. . . .

Your correspondent states positively that lint cleaners do not grind up the trash, and that when pin or pepper trash is left in the cotton it is because the lint cleaner has taken everything but the fine stuff out.

This statement is absolutely contrary to the experience of every mill laboratory man that I have talked to, and contrary to the results obtained by some extremely good independent laboratories.

There is no pepper trash in a freshly opened boll of cotton, and all of the pepper trash is put there somewhere between the newly opened boll and the bale. The pepper trash that worries the spinner is stuff that the ginner probably doesn't even know is in the cotton, because it is not noticeable to the naked eye in a cotton sample.

Your correspondent says that the lint cleaner does not work from a compressed lap of cotton. I would like to know how you can feed cotton into a saw cylinder through a feed roll and over a feed plate without compressing it.

A single-process picker has nice, fluffy cotton in a soft batt about six inches thick going into the picker, but this six-inch sheet is compressed by the feed rolls into a layer about 3/16" thick, and to speak of this as a soft batt at that point is ridiculous.

It doesn't make a bit of difference how fluffy the cotton is when it hits the feed roll, it is in a dense and highly compressed condition when the Kirschner beater or a saw cylinder strikes it; and a big piece of leaf packed down in this batt and gripped by the surrounding fibers is going to be ground up. We grind it up in our lickers-in in the mills, and we worry about the amount of pepper trash we make out of this leaf when we are putting about 15 pounds of cotton an hour through a card.

Your correspondent questions the statement that every spinner in the world knows that lickers-in will make neps and pepper trash. Maybe he is right. Maybe there are a few spinners who don't know it, but they must be making some pretty sorry yarn.

I happen to know a number of spinners that have been trying to get the addresses of gins with these lint cleaners so that they could refuse to accept cotton from them. Maybe there are some people making yarns where trash and neps don't make much difference and they can use this up-graded cotton to advantage.

The fifth point your correspondent brings out is one which galls us terribly. The idea that we can be stuck several dollars a bale by simply putting sorry cotton

through a licker-in without taking a single piece of trash out of it really gets us down.

If any of us wanted to buy this cotton for what it honestly was, and put it through our own lickers-in, we could do it; but if the cotton is so sorry that we can't do anything with it and won't buy it, then we feel that we have been deliberately swindled if somebody else does to it what we could do, and sells it to us for something that it evidently isn't.

Your correspondent is probably right in saying that more than half of the gins in this country are using these saw cleaners; and since cotton these days is ginned for the loan, instead of for the spinner, it is likely that in a few years all gins will have these lint cleaners. And if none of us can get reasonably good cotton any more, maybe we will get used to what we can get.

It is mighty hard, however, to get used to the idea of looking at a bale of cotton and thinking that we have paid maybe $10 or $15 to have somebody do something to it that we could have done ourselves for about 50 cents if the government had let us, and if we wanted to do it.

## Mills need to do more creative research, Daroff says

■ If the textile mills of America did the kind of creative research they should do, apparel manufacturers no longer would have to go to Italy, or any other foreign country, to get the new visual effects in fabric they are looking for today, according to Michael Daroff, president of H. Daroff & Sons, Inc., major manufacturer of men's clothing.

Speaking recently at the annual dinner of the Philadelphia Textile Institute Alumni Association, Mr. Daroff maintained that the textile industry "has hog-tied its research men by making them worry about production problems at the expense of creativeness." This type of thinking, he declared, can hurt the entire soft goods industry.

The search within the textile industry for new fabrics and new visual effects should come not from what technicians think the mills can produce, he maintained, but rather from an aroused awareness on the part of the industry of how today's consumer lives and the kind of clothes he wants to fit into this new pattern of living.

Mr. Daroff said there had been many advances made by the textile industry in the last 15 years, but pointed out that they had been primarily in the field of fabric performance and were achieved through the blending of natural fibers with the synthetics created by the chemical industry.

The important factor of visual appeal and effects to arouse consumer excitement has been neglected by the mills, he maintained, with the result many manufacturers go shopping in foreign countries. A new emphasis on creative research, he said, would go a long way toward re-establishing the industry to its former peak.

The clothing executive also urged that the textile industry proceed on an organized basis to learn all it can about the attitude and the changing ideas of consumers concerning their clothing. This information is of vital importance in creating and selling new apparel, he said, and maintained the effort and expense of obtaining this information was within the business responsibility of the textile industry.

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*first name in man-made fibers, first name in solution-dyeing.*
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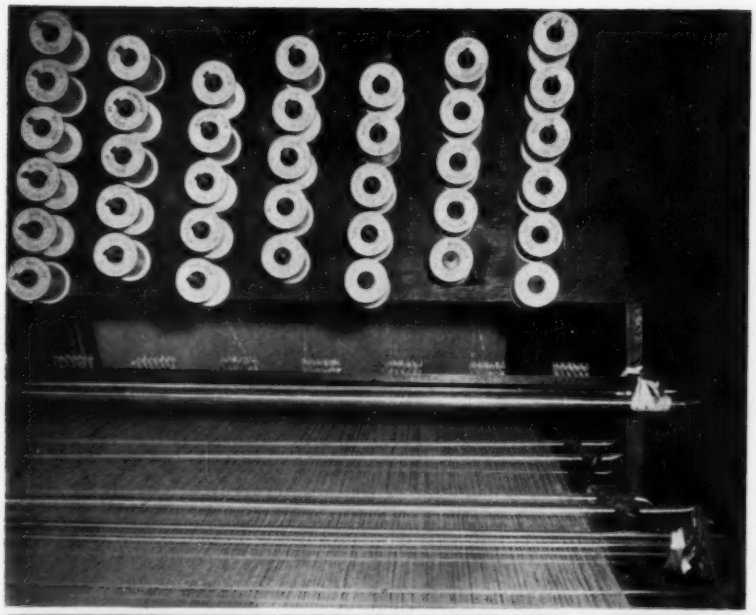
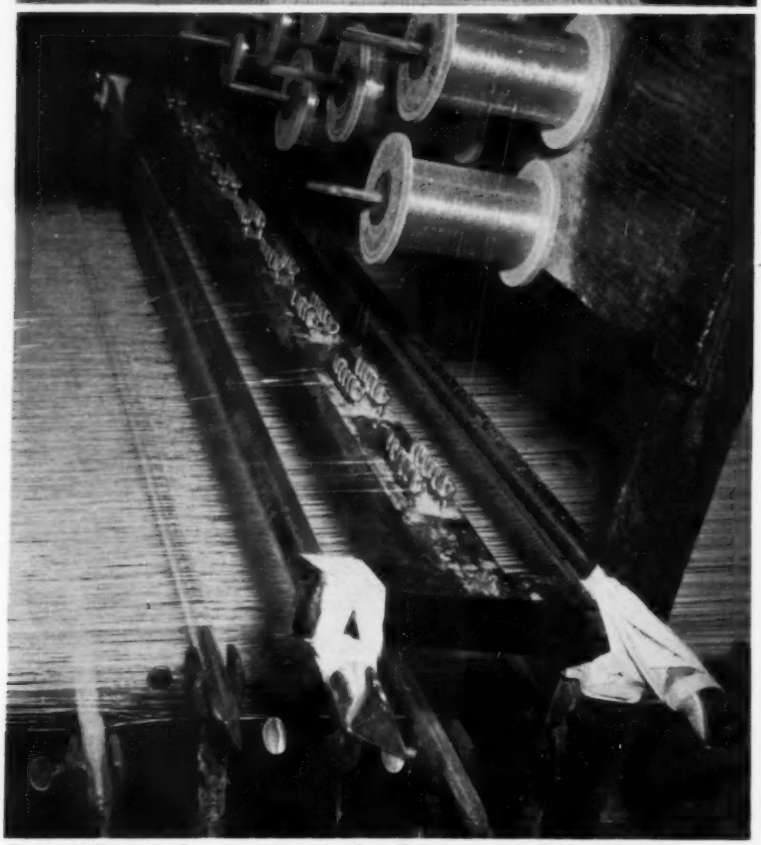




Since metallic yarns do not require sizing for efficient weaving, the logical point in cotton mills for them to be introduced to the warp is at the delivery end of the slasher, after the cotton yarns have been sized and are on their way from the drying section to the head end for winding onto the loom beam. Pictured here is the metallic yarn creel on a slasher at Riegel Textile Corp.'s Trion, Ga., plant. (When photos were made, creel was not in use.) Note in the TOP PHOTO the location of the creel with respect to the last drying cylinder. Actually it is about 2 or 3 feet from the cylinder to give an operator access to the warp sheet as it emerges from the drying section. In the BOTTOM PHOTO note the angle at which the creel is fastened to the slasher frame—top of creel is nearer to cylinder than the bottom. This keeps the spools of metallic yarn from coming off the pins and aids in tension control. Path of yarn from creel into warp is as follows: From spools on creel down through pigtail guides on wooden cross-bar, from guides toward front of slasher, over and around the lease rod in front (left rod in photo), toward the rear of the slasher, and over the lease rod behind the guides (right rod in photo), down into the warp sheet.

# EASY DOES IT!

*How metallic yarns are put into a Georgia mill's drapery fabrics*

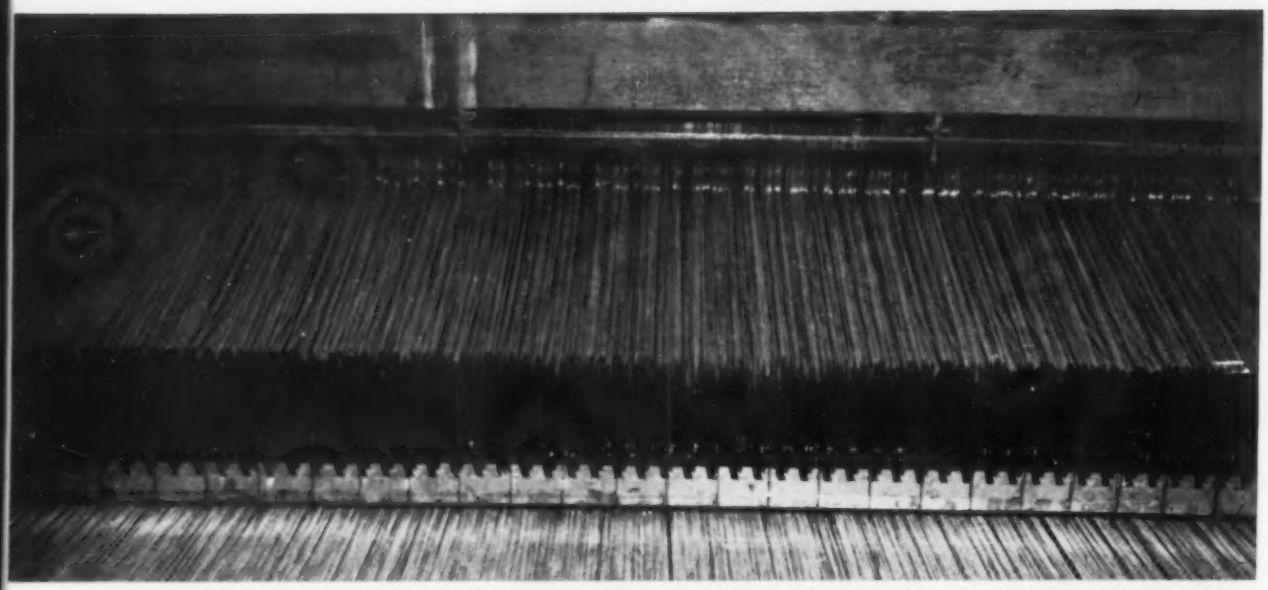
Staff prepared
Exclusive

DECORATIVE metallic yarns such as those now in general use in draperies, corduroys, and towels, have a characteristically low modulus of elasticity which can make the yarns difficult to handle. The typical lack of elasticity will not allow warp yarns to stretch during the preparatory and weaving operations and then regain their original dimensions.

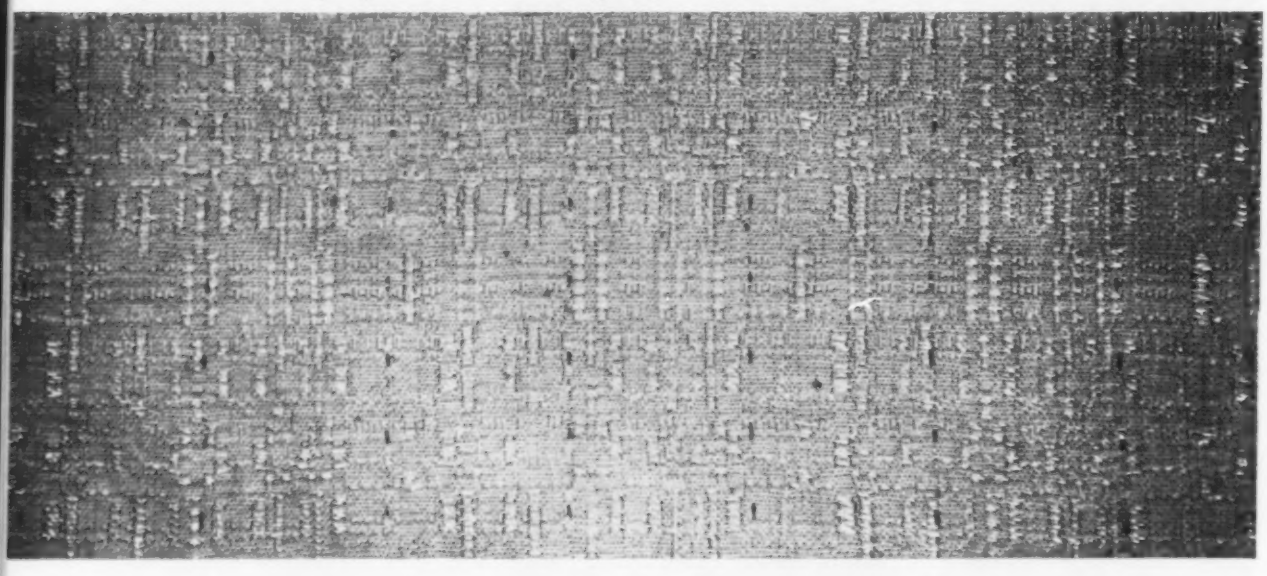
Once the elastic limit is exceeded the slack yarns have a tendency to "crawl" until the slack is taken up. If this slack is severe it forms loops.

At the Trion, Ga., division of Riegel Textile Corp. slack is avoided in drapery material by controlling the tension on individual ends as the yarns are beamed. The yarns are used, 48 per loom, in a style requiring 13 harnesses to control the body weave.

Needing no sizing, the yarns are wound onto the loom beams from a creel mounted on the slasher front. The creel will supply up to 108 ends from bobbins and consists of steel vertical supports holding



Close-up photo made from the back of a loom weaving the drapery fabric pictured below, the warp of which contains 48 ends of 1/64" gold-colored metallic yarn (note vertical black ends appearing at approximately one-inch intervals across width of fabric). Metallic yarns are drawn through the bank of drop wires nearest the warp (and camera) and through heddles of the harness nearest the warp.



wooden cross members into which are set the bobbin pins. The creel inclines at a convenient angle away from the front of the slasher to keep the bobbins from working off over the ends of the pins, and to aid in tension control.

The tension control in the above manner is slight, but important, and is provided by the weight of each bobbin resting against a washer at the base of the pin. Further control is provided by guides mounted at the front of the creel, the angle at which the guides are threaded, and two tension rods around which the yarn is threaded before it is introduced to the yarn sheet (see photos on page 79).

Bobbins are creeled at random, approximately two creelings per set. To expedite creeling when this style is slashed, the full bobbins are set into the center of the creel and the partially empty ones moved to the outer edges.

During tying-in the metallic yarns are by-passed for later hand tying. The regular weaver's knot is used. The body yarns are knotted mechanically as usual.

But for the above measures, the yarns weave as do regular cotton yarns, and with no more trouble. The metallic ends are drawn through the back bank of drop wires, and are manipulated by the back body harness. The fabric is 86 x 48 in construction, 48" in width, contains the 1/64" metallic yarn, 17s warp yarns, and 300 denier rayon filling.

# 2 cleaners better than 1

*New opening line raised break factor* 100 *points at Gold-Tex*

Staff prepared Exclusive

A NEW and modern opening room has been added to the improvements effected at Gold-Tex Fabrics Corp., Rock Hill, S. C. The new equipment features two Whitin Axi-Flo cleaners in tandem, and this is the only such installation known, according to George Peeler, general manager at Gold-Tex.

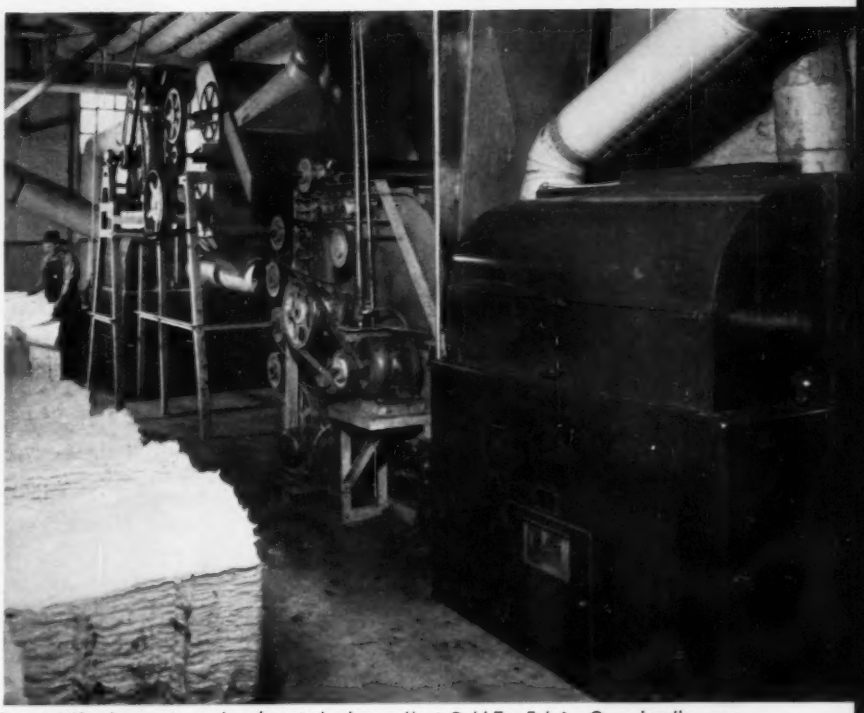
Better breaking strength, while using one grade lower cotton than formerly, is obtained with the present opening equipment, attesting to the effectiveness of the arrangement. Yarn appearance and grade are equal to or better than was evident when a higher, more costly grade of cotton was used and the old opening line equipment was employed.

Waste has increased about one-half of one per cent, and this is in the form of motes. The break factor went up more than 100 points as a result of the improved cleaning, opening, and blending.

Results achieved with this arrangement, which has been in use about eight months, have more than justified the change, Mr. Peeler said.

Stock in process now flows through the opening line from feeder hoppers to Junior cleaner, to feed table, to Axi-Flo, to No. 11 screen condenser, to another Axi-Flo unit. Opening line production is now about 1000 pounds per hour.

The old opening arrangement included feeder hoppers, feed table, and four Junior cleaners in tandem, feeding an SRRL opener, and from there the stock went to a downstroke beater. This line was changed to put the Junior cleaners between the feeder hoppers and feed table. Then the feed table fed the SRRL opener, and from here the stock went to the downstroke beater.



Two Axi-Flo cleaners in tandem (one in background) at Gold-Tex Fabrics Corp. handle opening line production of about 1000 pounds per hour.

Once every three hours droppings are removed from both of the cleaners. Quantity of motes taken out of stock is up about 0.5%.

# Finishing plant keynotes improved operations

*Collins & Aikman's Albemarle plant consolidates development, styling, and finishing near company's weaving mills*

Staff prepared Exclusive

ABOUT 350 persons, including divisional management, sales, styling, engineering, and office personnel, are now employed at Plant A of the Collins and Aikman Corp., Albemarle, N. C. This new finishing plant contains 125,000 square feet of floor space, and equipment to finish practically every kind of fabric.

The parent company was decentralized about three years ago, and the automotive division was set up separately. The Albemarle plant is actually the finishing operation for the automotive division, which handles upholstery fabrics, carpeting, and decorative fabrics. The new operation has a capacity of 200,000 yards or more per week, depending upon the types of fabrics being processed.

Development and styling are now done at Albemarle where the staff is housed in the new structure, and results are better than when this function was performed in New York, according to P. H. Chance, vice-president. Mr. Chance attributes the improvement to closer liaison with the manufacturing plants, which are all in close proximity to styling headquarters in the new finishing plant at Albemarle.

Mr. Chance lists the advantages achieved by establishing the new facilities at Albemarle as follows:

(1) More central location in proximity to weaving mills.

(2) Palletizing grey goods and storage improvements made possible by the new facilities. (In the old Philadelphia plant, storage was on an upper floor and presented many problems.)

(3) Flow of materials and processing is improved from the viewpoint of efficiency as well as quality.

(4) The dyehouse layout with new stainless steel equipment throughout and new, efficient, and versatile dryers has effected a marked improvement in results.

FLOW OF GOODS through the new plant is briefly as follows:

Grey goods are received by motor truck and are placed on wood pallets (with steel framework). These are stored in tiers, and pallets as well as tiers are numbered for quick and easy location of any lot in storage. Heavy supplies arrive on a railroad spur line to the plant.

In processing, the first step is to make up dye lots by selecting compatible cloth rolls. Frequently, the fabric is unrolled, folded, and tacked to form a tube to make the goods balloon in the dye kettles. This improves wet processing results by assuring even penetration and avoiding streaks. Goods are run both in open width on a continuous range and in rope form in dye kettles, depending upon requirements.

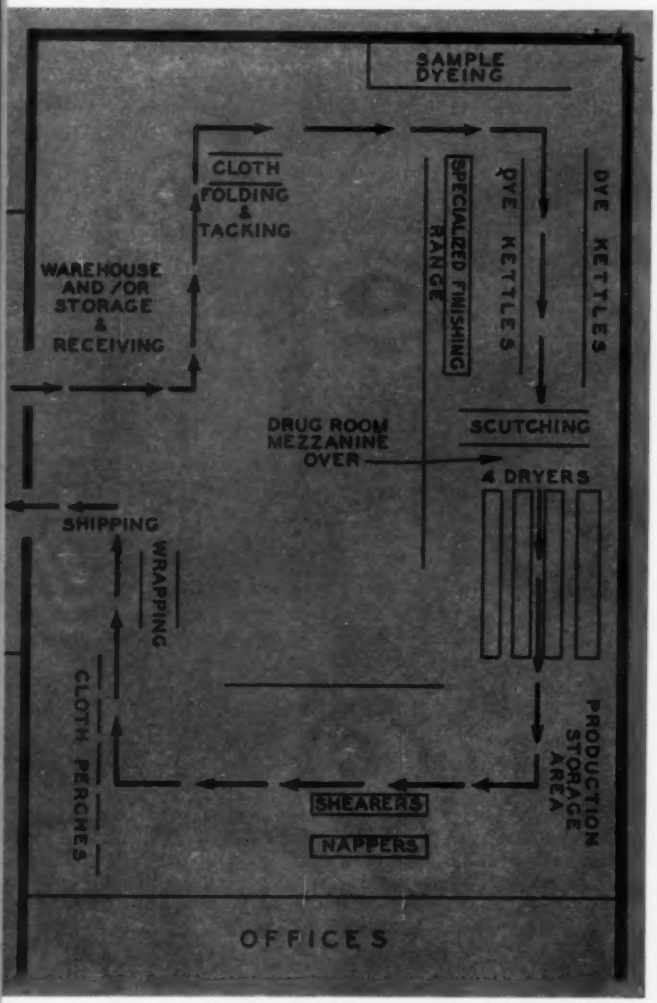
Upon leaving the dye kettles, the goods are opened on scutchers. Vacuum extractors also remove some water while scutching.

After opening by scutching, the goods go to pin or clip tenter dryers, depending upon requirements. There are four new Famatex dryers installed side by side, each comprising 10 sections. Here correction is made for bow and skew, and overfeed or underfeed may be accomplished by simple machine adjustment. This installation of Famatex machines represented the largest of its kind in this country when the plant went into operation.

The compact drying chambers save space and conserve fuel, are easy to clean, and easy to work on, according to a plant spokesman. These units are equipped to coat, dry, aftertreat, and straighten the fabrics and have been found among the most versatile equipment for the finishing plant, according to plant officials.

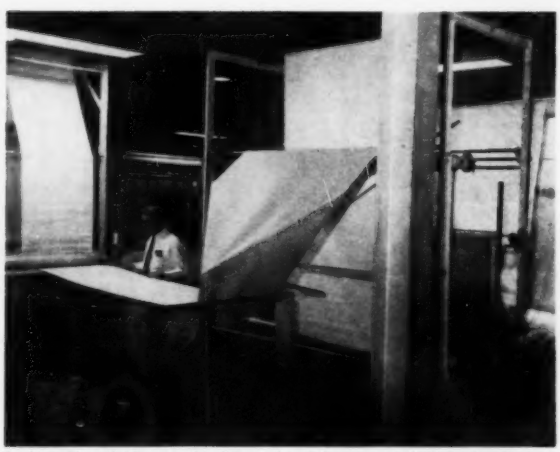
Upon leaving the dryers, the goods usually go to the cloth perches for inspection and marking. However, napping and shearing equipment is in place for fab-

Underground tanks are provided for handling large quantities of latex (arrows) and brine (tank near freight car). The liquids are pumped to smaller storage tanks in the plant as they are needed.




How goods flow through Collins & Aikman's Albemarle finishing plant may be readily seen by following the arrows on this floor plan from the receiving station at the upper left. Photos show processing equipment.

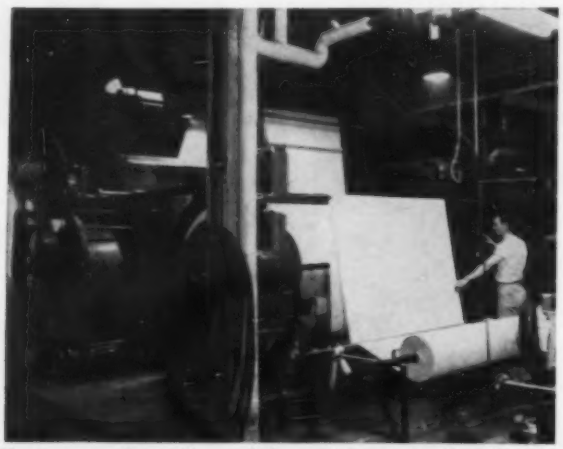
Pallets and tiers are numbered, and hold goods received as well as goods to be shipped. Numbers permit easy location of any lot in storage. Grey goods arrive by truck; heavy supplies arrive by rail.



Tacking the cloth into the form of a tube assures ballooning during wet processing, and therefore even penetration and avoidance of streaks. Facilities are also available for open-width processing.

Stainless steel dye kettles are located to eliminate unnecessary movement of goods during the sequence of operations. Continuous dyeing range is also available, adding to the plant's versatility.

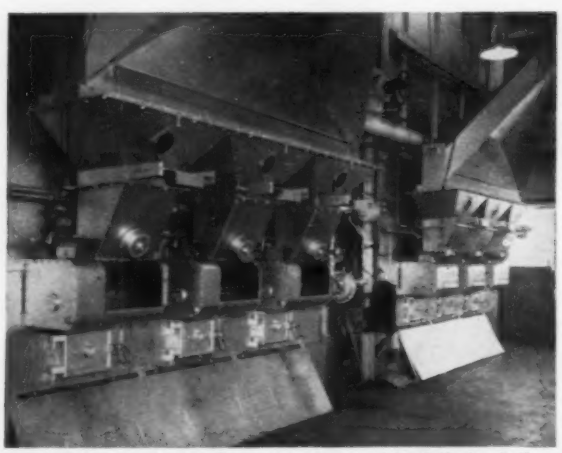
The Albemarle plant has the largest installation of Famatex dryers in the United States. There are four dryers, installed side-by-side, each with ten sections. Bow and skew can be corrected here.



The sequence of operations includes napping and shearing where the finish requires these processes. The nappers and shears are located behind the dryers, to maintain a smooth flow of goods in process.

Cloth perches are arranged for effective inspection at the end of the processing cycle. Goods arrive here from the dryers, or from the napping and shearing department if they have been face-finished.

The Dyken wrapping machine handles cloth rolls efficiently and ejects them ready for shipping. The plant has a capacity of 200,000 yards or more per week, depending on the type fabrics in process.

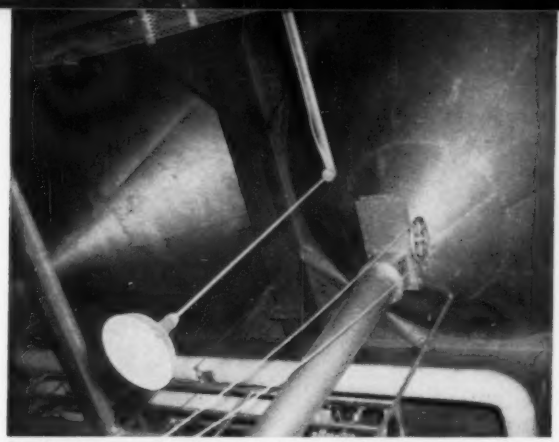


A separate new structure houses two new coal-fired Keeler boilers, producing 50,000 to 70,000 pounds of steam per hour for heating, dyeing, drying, and for other in-plant operations requiring steam.

rics requiring these operations.

Upon inspection, the cloth rolls are wrapped quickly by a Dyken wrapping machine, which ejects the roll ready for storage or shipment.

A mezzanine floor in the manufacturing area houses the drug room and chemists who check all work in process by receiving samples through a vacuum tube messenger system. The dyers send sample swatches from each machine to the mezzanine for checking before any fabric is removed



Overhead storage bowls each hold two freight car loads of coal, which is fed through Riley stokers to the boilers. Ample overhead, underground, and surface facilities for coal storage are provided.

Samples are sent by vacuum tube to mezzanine from each dye machine for checking before liquor is dumped or batch is removed. Chemists oversee procedure and check quality without leaving the mezzanine.

from the dyeing machine.

The dyestuff formulations are all mixed on the mezzanine floor under supervision of the chemists. Then the mix is delivered to each dye machine by means of a pipe manifold, which displays the correct dye machine number for each receptacle (see illustrations). Thus, dyeing operations are closely supervised by the chemists without having to leave the mezzanine.

Liquid rubber and brine are stored in underground tanks on the grounds. From here the liquids are pumped to smaller storage tanks in the plant as needed.

A NEW and modern boiler house contains two Keeler steam boilers (coal fired), producing from 50,000 to 70,000 pounds of steam per hour for supplying heat and steam for in-plant operations. The boilers are equipped with Riley stokers which are fed by overhead storage bowls, each holding two freight car loads of coal. Overhead, underground, and surface storage are provided for ample coal handling convenient to the effective conveyor system.

In this plant every dye lot is tested for wear, color migration, fade, crocking, and any other characteristic sought in the finished product. Thus, quality is no accident here.

The old plant in Philadelphia comprised six floor levels in an old structure, and deterrents to effective and progressive operation were found too numerous to mention. This fact appears evident, in view of the new and modern facilities now in use so effectively under the capable management at Albemarle.

# 1957 man-made fiber production up 7½% over 1956

■ UNITED STATES production of rayon and acetate during 1957 amounted to 1,139,400,000 pounds, a decline of 1% from 1956 output of 1,147,900,000 pounds, according to the annual presentation of man-made fiber data in the *Textile Organon*, statistical bulletin of the Textile Economics Bureau, Inc. This small decline from 1956 was comprised of lower production of rayon yarn and acetate staple and tow, but increased output of acetate filament yarn and rayon staple and tow.

Total domestic output of the man-made fibers in 1957 was at a record level of 1,764,600,000 pounds, an increase of 7½% over 1956 and 3% above the previous record of 1,715,-800,000 pounds produced in 1955. Thus the noted decline of 8,500,000 pounds in rayon and acetate production was more than offset by an increase of 115,300,000 pounds or 29% in non-cellulosic fiber output and an increase of 13,100,000 pounds or 13½% in the production of textile glass fiber to a total of 109,600,000 pounds.

Non-cellulosic filament yarn and monofilament production totaled 335,000,000 pounds, 22½% above 1956 for a new annual record, while the 1957 non-cellulosic staple and tow output at 180,600,000 pounds was 42% above the 1956 level and also at a new high level.

The publication's tabulation of domestic rayon and acetate output by product shows that high tenacity rayon yarn production declined from 370,500,000 pounds in 1956 to 340,-800,000 pounds last year or by 8%, regular and intermediate tenacity rayon yarn declined from 186,300,000 pounds to 165,600,000 pounds or by 11%, and acetate staple and tow from 57,300,000 pounds to 53,900,000 pounds or by 6%. On the other hand, production of rayon staple and tow increased from 341,000,000 pounds in 1956 to 371,200,000 pounds last year or by 8½%, while acetate filament yarn increased from 192,800,000 pounds to 207,900,000 pounds or 8%.

The tabulation of rayon and acetate filament yarn shipments by trade shows that the total of 704,700,000 pounds in 1957 comprised deliveries of 496,600,000 pounds of viscose and cuprammonium rayon yarn and 208,100,000 pounds of acetate yarn.

Within the viscose and cupra total, shipments of textile rayon yarn totaled 171,100,000 pounds, a decline of 12½% from 1956. The largest market for this textile yarn is the broad woven goods trade which received 106,400,000 pounds or 62% of the total.

For acetate filament yarn, the principal market continues to be the broad woven goods trade which received 168,100,000 pounds or 83% of the 203,100,000 pounds delivered to domestic consumers in 1957. The second largest market for acetate yarn is the warp knit goods trade which received 24,500,000 pounds or 12% of the domestic deliveries last year.

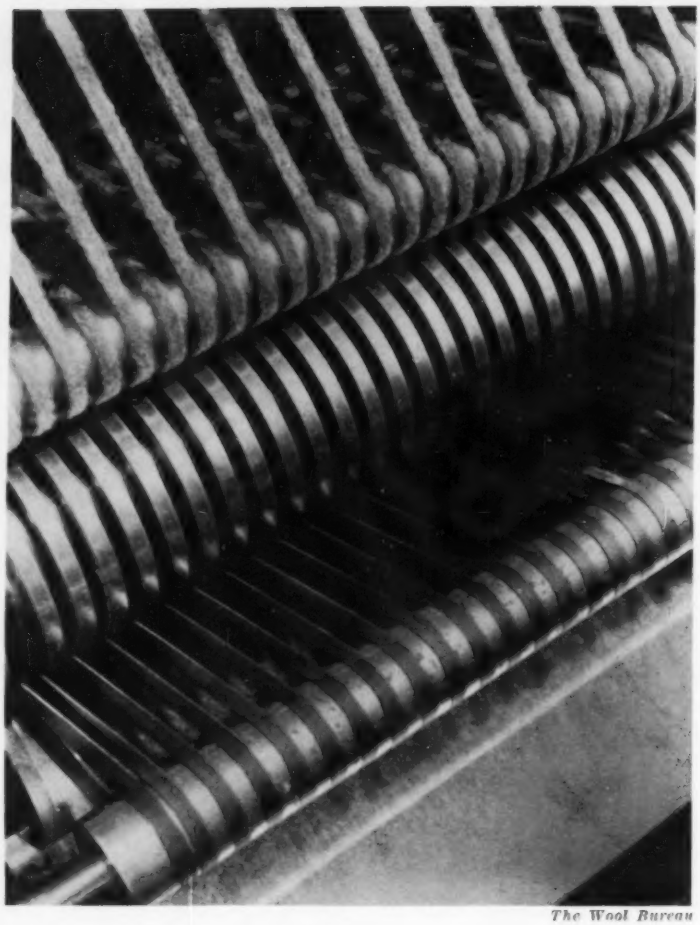
*How to get better work from*

# THE TAPE CONDENSER

*Part 1 — Drafting*

by William J. Crofts

Exclusive



*The Wool Bureau*

SOMETIMES the spinner will say of the roving from a certain card that some spools run very well while other spools show too much breakage during both the drafting and twisting processes. In such a case the chances are 10 to 1 that one or more spools on the tape condenser are being drafted more tightly than other spools. In adjusting his drafts on the frame or mule to get the correct yarn weights, the spinner must set one draft for all the spools; therefore, it follows that all spools must have the same drafting at the condenser.

If a string is under tension then only a few pounds of added tension are needed to snap the thread, and this principle is true with the woolen roving threads. If the fibers are relaxed because of slack drafting, the spinner can draft or draw out the roving with a minimum of breakage as the twist is applied; any spools that are more tightly drafted at the condenser will show a marked increase in breakage, and there is little the spinner can do to help this situation.

*Slack Drafting.* Slack drafting the modern four-bank double rub tape condenser is a far more complex operation than drafting the now obsolete two-bank ring doffer condenser, since there are 13 drafting points on the tape condenser against only 6 on the ring condenser.

Before stopping the machine and making hasty gear changes it is best to check the entire condenser to see if any rub aprons are slack and slipping. Sometimes one of the bearings on a rub apron idler roll may be binding, which will cause apron slippage. Then check all gearing and chain drives; there may be a chain too slack and skipping, or gears too lightly in mesh and slipping past the cogs.

If all working parts are in order, check all 13 drafting points, using a flashlight to light up the dark places, and rather than trust to memory and in order to have a clear picture of actual conditions it is best to make a rough sketch on paper as in Fig. 1.

Making a rough sketch may save some down time as so often when trusting to memory the drafting job is not complete and card must be stopped again and again for further draft adjustments. With this sketch in hand the card is stopped and by referring to the sketch the carder will know exactly the changes to be made.

In this case (Fig. 1) there is tight drafting at the tapes of the top deck, so a reduction in speed of 1 tooth or 3 per cent is necessary at

section A; and, since the draft is correct between Sections A and B, then the speed of Section B must be reduced 1 tooth also to correspond with reduced speed of Section A. This reduced speed of rub aprons will tighten the winding tension of roving to the spool drums, hence the driven grooved sheaved expansion pulley at the spool drums must be enlarged one half turn to keep winding tension in line with the reduced speed of rub aprons.

Deck No. 2 with the double T needs the same treatment, but with double the reduction in speed all the way, including the spool drum. The tension on the bottom deck is tight between rub aprons and the spool, which calls for a one-half turn increase in the size of the driven grooved sheaved expansion pulley.

*Winding Tension.* It must be always borne in mind by the card fixer that the winding tension of roving onto the spools is the ultimate drafting force, and it does no good to correct the drafts at the rub aprons if the winding of the roving onto the spools is not adjusted accordingly. Also, it is important that the winding tension of spools to all four decks is the same at all times.

The double V-belt driving the grooved sheaved pulleys must be kept tight to prevent any slippage. Sometimes one of the spool drums gets out of adjustment and binds, causing slippage, and this must be corrected to keep the winding tension in line with the other three spools. The spool drums are deeply fluted to prevent spool slippage, but when building a long spool twelve or fourteen inches in diameter where the metal of the spool drum is worn smooth there is likely to be spool slippage when the heavy spool fills up to its full diameter. To prevent this, it is a good plan to paint the surface of the spool drums with a special spool drum paint that is on the market.*

*Tape-to-Apron Draft.* The draft between tapes and rub aprons is correct when the bend in the webs rises to a point level with the bite or intake of the rub aprons. If the bend in webs rises much higher, individual webs here and there get pinched between the tapes and rub apron and break off. When the webs are lying close to or hugging the curve of the rub apron the draft is too tight. Between the two sections of aprons the webs should vibrate slightly and if the webs appear straight, showing no vibration at all, then the carder can gain at least 1 tooth or 3 per cent in slack drafting at this point.

On some makes of condensers all the spool drums are driven independently of the rub apron drives, and when changing the speed of Section B rub aprons on any of the four decks the speed of spool drums must be changed. However, there are many condensers in use today with all spool drums driven directly from the rub apron draft gear on the second deck, which sometimes causes confusion as to which spool drums to change under certain drafting situations. A simple example is illustrated in Fig. 2.

In this situation, all drafts are correct except between rub apron Sections A and B on the second deck, hence Section B on this deck

*The spool drum paint, a rough-finish battleship gray, can be obtained from Johnson & Bassett, Inc., Worcester, Mass., although any good metal paint with a flat finish will do the job. Some carders sprinkle fine sand over the wet paint. Spool drums must be cleaned of all grease with an oil cutting agent, and it is advisable to roughen the surface of the drums with coarse (No. 1, for example) emery cloth before painting.

FIG. 1

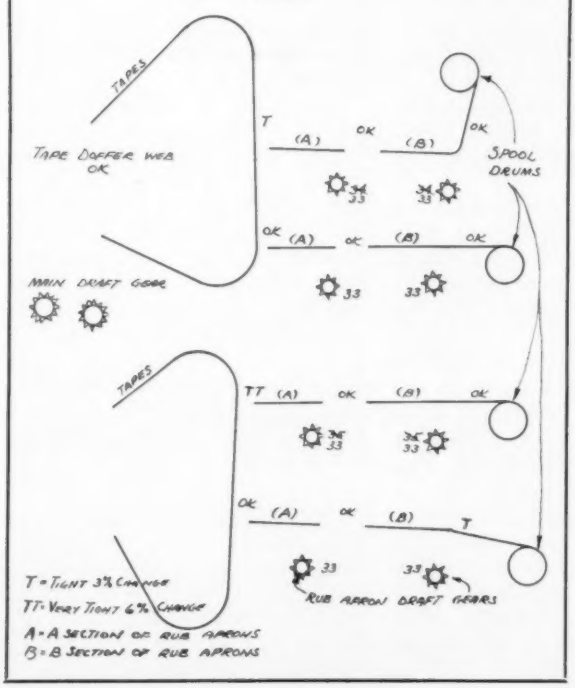



FIG. 2

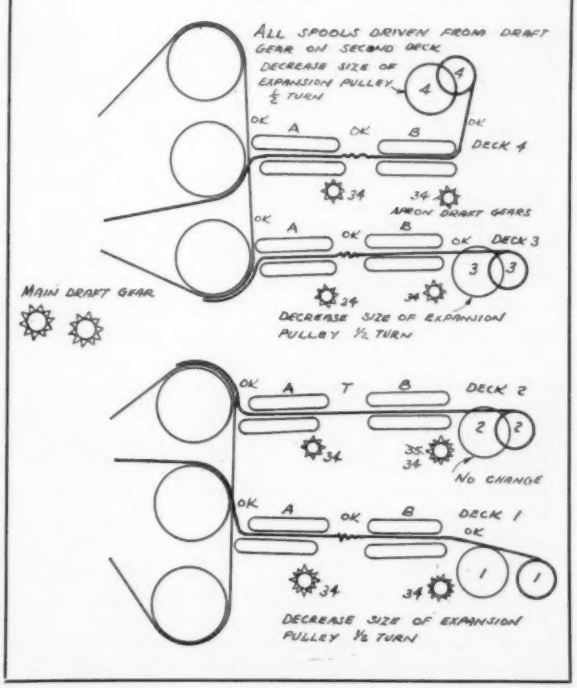


FIG. 3

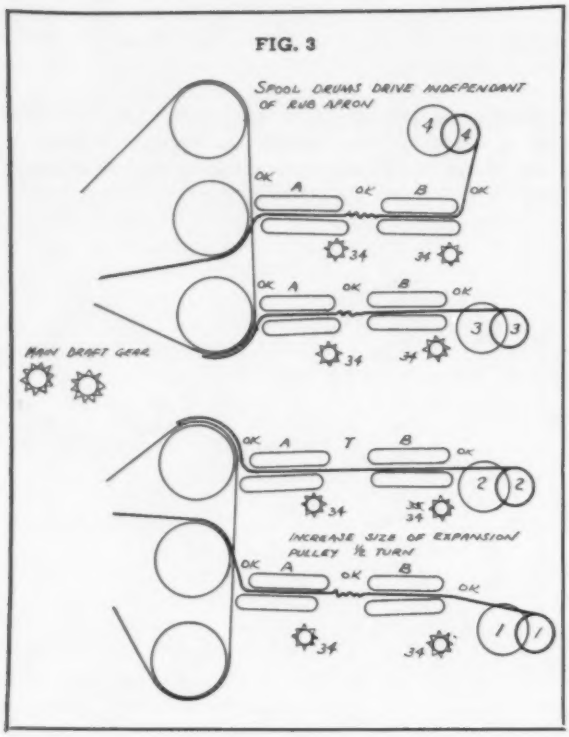
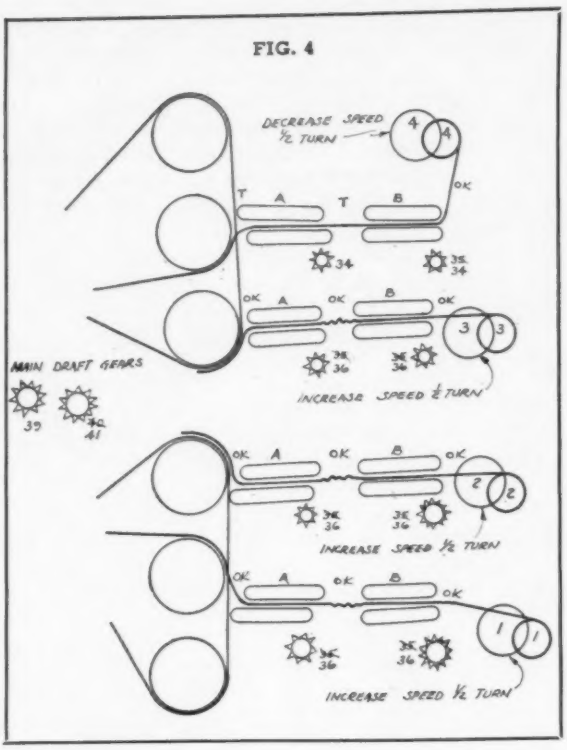



FIG. 4




must be slowed down one tooth. All spool drums are driven from this draft gear, so all spool drums are slowed down 1 tooth or 3 per cent when the draft gear is changed. Since the speeds of Section B on No. 2 deck and its spool drum are both decreased 3 per cent when the draft gear is changed, there is no change in the draft from Section B to the spool on No. 2 deck, but with no change in the speeds of Section B on Nos. 1, 3, and 4 decks, and with the speed of spool drums decreased 3 per cent, the draft to the spools will be too slack, hence all three drums must be speeded up to keep the drafts of all four decks identical.

The drafting situation in Fig. 3 is the same as in Fig. 2, except that all four spool drums are driven independently of the rub aprons. Hence there are only two changes to make and both changes are on the second deck. The 35-tooth draft gear is changed to a 34-tooth gear, which reduces the speed of section B and eases the draft 3 per cent between Sections A and B. Since the speed of all the spool drums remains the same, the draft from Section B second deck to the spool drum will be tight, which calls for an increase in the size of the No. 2 driven expansion pulley. One half turn of the adjustable flange makes about a 3 per cent change in size and in the speed of spool drums.

In Fig. 4, Section A on top, with the smallest draft gear in place, is still drafting too tightly so no change can be made at this point. The speed of Section B can be reduced 1 tooth or 3 per cent to ease the tension between Sections A and B, and No. 4 spool drum slowed down 3 per cent.

The next move is to increase the speed of all rub aprons and spool drums 3 per cent on decks Nos. 1, 2, and 3, which tightens the drafts at the tapes to correspond with the top or No. 4 deck.

Now with the drafts the same on all four decks but tight at the tapes, we go to the main draft gears, which change the speeds of all four decks including the spool drums, and reduce speed 1 tooth or 2.5 per cent. This eases the tension on all four decks at the tapes.

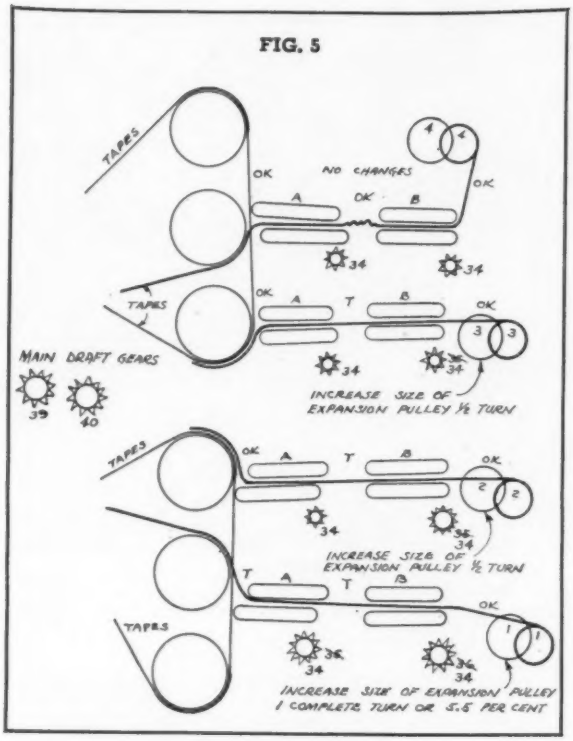
Admittedly this is an unusual drafting problem with complicated changes but nevertheless a situation the woolen carder experiences at times.

In Fig. 5, the top deck is OK all the way and no changes are necessary. The draft on No. 3 deck is tight between sections A and B. Decreasing the speed of section B tightens the draft to the spool drum, hence the size of the grooved expansion pulley must be increased ½ turn to reduce the spool drum speed 3 per cent. No. 2 deck is same as No. 3.

The drafts on the bottom deck are tight both between tapes and rub aprons and between Sections A and B of the rub aprons. When Section A is slowed down 1 tooth this further increases the draft tension between rub apron Sections A and B so the speed of Section B must be reduced 2 teeth, from a 36-tooth gear to a 34-tooth gear, and the diameter of grooved expansion increased 1 complete turn to reduce speed of the spool drum in line with reduced speed of rub aprons.

*Other Factors in Draft.* Drafts will change from lot to lot, since very few woolen mills specialize on one type of fabric or quality of stock and drafts usually need adjusting at the start of new lots. Static is a factor too, and in a poor-

FIG. 5




ly constructed building with loosely fitting windows drafts will change with the changing outside weather. During a spell of wet weather the moist air keeps the drafts slack and a spell of dry weather has an opposite effect. Temperature and humidity control in a weather-tight building is a great help in holding the drafts steady.

Another factor that has a profound effect on the drafting is uneven application of the emulsion to the stock, since the drier stock in the lot will draft more tightly than the moist, relaxed fibers and the drafts will constantly be changing. This is an evil that should never happen, but if it does it should be corrected at its source—the blending room.

Because of these and other factors the drafts on all tape condensers should be checked at least once every shift. Two or three routine checks per shift is better.

Uniform drafting of all four decks helps to keep the roving weights of all the spools closer together. For instance, if the roving weights from one deck consistently register 2½ or 3 per cent lighter in weight, a careful check of the drafts will usually show this deck to be drafting more tightly at one or more of its three decks. Perhaps the weights from one deck are registering 3 per cent over the standard, and when the drafting at this deck is found to be somewhat slacker a 3 per cent increase in the drafting speed will correct the condition. However, if this deck is running well, it might be best to try slackening the drafts on the other three decks in line with the more slackly drafted bank, always remembering that the slackest possible drafting without undue end breakage will improve the spinning.

Decreasing the drafting speeds of all four decks 3 per cent means a 3 per cent increase in the roving weights and a 3 per cent loss in production speed. This can be remedied very quickly by increasing the size of the production gear 3 per cent, which automatically decreases the roving weights to the prescribed standard. When starting new lots and it becomes necessary to increase or decrease the drafting speeds, the production speed should always be changed accordingly to keep the production at the required standard, consistent with the quality of the stock.

*Wavy Web.* All carders have had the problem of a wavy web from the tape doffer. When these waves become pronounced they cause a variation in the weights and sizes of individual ends and a continual fluctuation of the weights from spool to spool. Slack drafting the web makes this wavy condition worse, and if the drafting is very tight at this point the web peels down from the surface of the doffer.

Any stocks coarser than 3/8 blood are the worst offenders—especially the long, smooth-fibered blends. The best way to handle this problem is to adjust the draft as well as possible, and when the wavy condition becomes serious, strip out the tape doffer. With vacuum stripping this can be done with the card in production. Clearing the doffer wire gives the empty wire a chance to grip and hold the long, smooth, slippery fibers which makes for a smoother web, and stripping alleviates the objectionable wavy condition for several hours. The use on the tape doffer of a dickey roll with its points set into the doffer clothing to keep the points of doffer wire clear is a great help.

The writer once had an experience in a mill in which the bulk of the blends was composed of long coarse stocks for fleece fabrics. An order came through for dry spun sweater yarns and the blend was composed entirely of short fine stock. When the first lot was started the spinner complained of too much breakage when drafting the yarn on the frame.

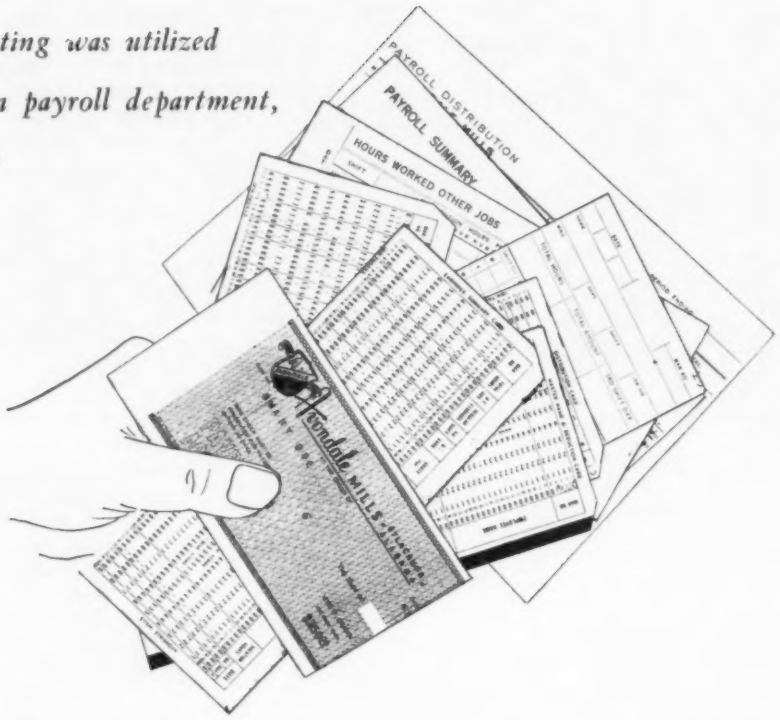
All drafts were checked on the condenser and found to be OK. The web from the tape doffer was flat, smooth and apparently drafting nicely, but it was decided to slacken the draft of the web 2 teeth, or about 6 per cent, and since this had no appreciable effect on the smoothness of the web, the draft was slackened another 6 per cent.

In all, the speed of tape doffer was increased approximately 15 per cent without any wavy effects appearing in the web, which made the spinning run so well that the boss spinner agreed that the roving could be made 5 per cent heavier—which made a gain of 5 per cent in card production.

Is all this emphasis on drafting important? Emphatically, yes, when we consider all the benefits that accrue: more even roving weights; better spinning, which means increased spinning production; better yarns, and a more satisfied working force. In many cases a cooperative spinner can allow the carder to make the roving 5 or even 10 per cent heavier, which means that much added card production. *(Continued next issue)*

*Before punched card accounting was utilized in Avondale Mills' Sylacauga payroll department, 21 folks were required. Now*

# 7 pay 2,000




## Staff prepared Exclusive

WITH the adoption of an IBM (International Business Machines) system in the payroll office of Avondale Mills, Sylacauga, Ala., that office was able to free 14 people for other duties in the general office. Where 21 people once made out the 2000 checks along with other accounting duties all applicable to the Sylacauga location, seven people now perform the overall payroll-accounting process.

The IBM operators were trained on the job to perform the automatic and mechanical operations while the original system was in effect. Since the two processes are not compatible, the change from one system to the other had to be done cleanly. Thus when the operators on the new system had become proficient in their new duties, the new process was instituted in its entirety.

The new system is not confined to payroll functions. In 1949 the firm began the sale of its village property to its employees. The IBM system handles all the real estate sales records.

The staff prepares the annual retirement, vacation, and other profit sharing records as well as the quarterly reports incidental to federal and state withholding tax structures. Also, and with auxiliary personnel, the office processes the data for statistical sales analysis and inventory control.

Each week a time card is prepared mechanically and is forwarded to the plant for use as a clock card or as a register of piecework. The timekeepers complete the entries on these cards and return them to the payroll office. Here the payroll clerks check the totals for accuracy and pass the cards to the keypunch operators. No other long hand entries are necessary.

The key punch operators translate the data from the time card to an IBM card. If the employee worked on more than one job number or worked overtime, more than one IBM card must be prepared—one for each job number. Overtime must be recorded on a separate card, to reflect the amount of overtime and the job on which the overtime occurred.

A VERIFIER is used to disclose any errors in the transcription of the data from the time cards to the distribution card. The operator of this machine repeats the process performed by the operator who punched the card originally.

Let us suppose that the first operator inadvertently punched in a "four" when the entry should have been a "three." As the operator of the verifier punches in the correct entry—the three—the verifier will balk and refuse to advance the card to the next column.

The second attempt of the operator to punch in a three meets with the same response from the verifier. On the third attempt by the operator to "force" the divergent reading on the verifier the machine punches a notch over the column in which the error occurred and locks its own keyboard. It absolutely refuses to budge until the card is removed and the machine is reset.

The same safeguard works in case the operator of the verifier makes the error. In this case the verifier refuses to respond by not

Annette Summerlin, Betty Gay, Catherine Downs, and Faye Powell (pictured here from left to right) are preparing distribution cards from the time cards brought in from Avondale's Sylacauga plants. Annette and Catherine are key punching the payroll data cards. Betty and Fay are verifying accuracy of the recorded data. Machines are also used for statistical analysis.

Stewart Sasser (above) checks on the performance of a tabulator as it prepares time cards from the master name card file. This file reflects the man number and name of each person on the payroll. For this weekly operation the machine is "instructed" to include the proper payroll date without the use of date cards. In the photo to the right Richard Sawyer operates a tabulating machine as it prepares the payroll distribution sheet from the distribution cards (arrow). Since there may be more than one card per person on the payroll, this machine must combine the data from all cards pertaining to each person, print the combined results on the payroll distribution sheet, and through the auxiliary punch to the left, prepare a new card which reflects the entries on the distribution sheet. From the printed sheet the cost department learns the amount of payroll charged to each job and to each department.

registering the impulse and by not advancing the card to the next column. Then if the operator punches the correct key on the second attempt, the verifier assumes its normal operations. If the third effort of the operator is still in error, the verifier will lock up as if the error were on the card.

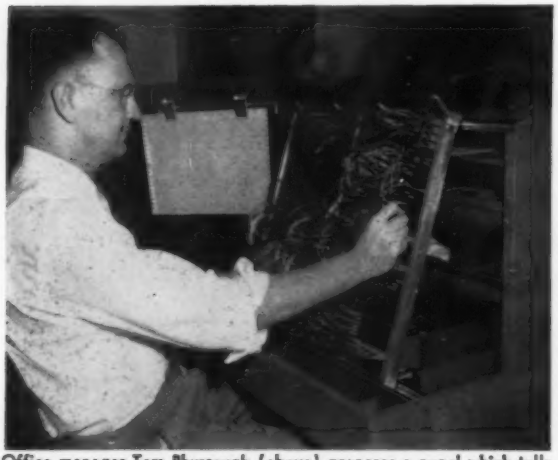
Of course the verifier can disclose only divergent entries. If both operators commit the same error the verifier will accept the majority opinion without a fight.

This punched record is called the distribution card. Since the payroll is prepared every two weeks while the time is logged weekly, at least two of these cards are needed for each payroll period.

The only other manual key punching necessary in the entire system is in the preparation of the master name card. These are prepared to coordinate the man number with the name of the person to which the number is assigned. This card is kept filed and is not renewed unless the card is damaged or the name-number combination is changed.

AS SOON AS the distribution cards for the two weeks are prepared they are summarized on the payroll distribution sheet. This is an "off-step" process which is used by the standards department. It reflects the mill and department in

The calculator above operated by Stewart Sasser is combining from several cards for each man number the regular hours worked, overtime hours worked, third shift differential, piece rate pay, etc., and punching the results into the gross pay column of the weekly summary card for each man number. In the right photo Richard Sawyer and Lafayette Ratchford check out the tabulator as it now prints the payroll summary sheet. This is the same machine which is shown on the preceding page, printing the payroll distribution sheet.



Office manager Tom Phurrough (above) prepares a panel which tells the collator what to do. At the right he checks it out to see that it "understands" its duties. The collator is merging two files into one by matching man numbers on the individual cards.

which the employee worked, his job number, total hours, regular amount earned, overtime hours, overtime premium, third shift premium where applicable, and total amount earned. This sheet is prepared from the card files in approximately 45 minutes.

The distribution cards are placed in a calculator which multiplies the hours times the rates (this includes overtime and overtime amount) to arrive at the gross pay. This machine punches in the new amounts as it determines them.

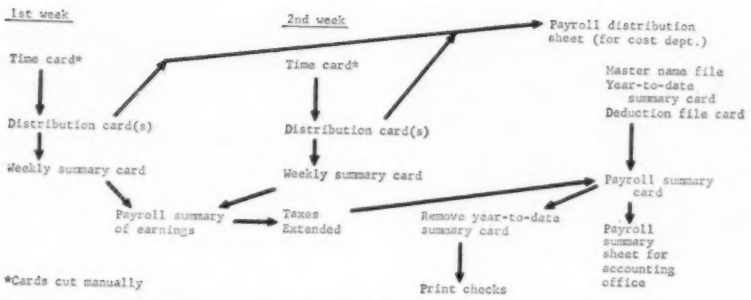
These cards are then placed in a tabulating unit which summarizes the information and punches it into a single weekly summary card. The two weekly summary cards collected during the two-week payroll period are summarized on the same machine and consolidated in a single payroll summary card which reflects the gross earnings, withholding taxes, and gross pay after taxes.

Each four weeks a payroll summary sheet is prepared to serve as a check-point against the individual checks issued. This sheet reflects the employee's names, numbers, total hours worked, gross earnings, deductions, net pay; and in a special section, the gross pay and deductions for the year to date are entered.

The cards necessary for the preparation of this sheet include the payroll summary card for the past two weeks, the interim prior payroll summary for the previous two weeks, the master name card file, the deduction file card, and the prior year-to-date summary card.

The cards for the above process were merged for that step by a collator which receives the individual files and stacks them in groups of cards for use by the tabulator.

The drawer containing the master name cards for the 2000 Sylacauga employees is brought to the collator along with the drawer containing the deduction file cards. The collator selects a card from the deduction file and pairs it with a card bearing the same man num-




**Steps in the preparation of payrolls by Avondale's punched-card accounting machine unit.**

ber from the master name file, drops the two in a pocket, and proceeds to the next pair. The cards are kept filed numerically to prevent delay at the collator. Thus the cards from the two drawers are paired and stacked (merged into a single file).

This single file is then merged with the cards from the year-to-date summary file. The resulting merger leaves a single file containing groups of three cards matched by man number. The next merger inserts the prior payroll card, and the fifth pass inserts the current payroll card. These five cards supply the information for the payroll summary sheet. Collating is done at a speed of 450 cards per minute.

Once the payroll summary sheet is prepared, the year-to-date summary card is removed from the file and the checks are printed from the remaining four. Check printing (2000) requires approximately 3 hours. The payroll summary requires approximately 2½ hours, and the payroll distribution sheet requires about 45 minutes.

# Says tools urgently needed to quickly evaluate spinning performance of cotton

■ RESEARCH for better methods of measuring cotton quality was called for recently by a cotton marketing specialist.

Vernon Moore, production and marketing division, National Cotton Council, told those who attended the recent Beltwide Cotton Production Conference that due to increased raw material and labor costs, cotton mills have been forced to operate at a higher efficiency. To assure trouble-free operation and uniform product quality, they are more careful in selecting their cotton.

Mr. Moore pointed out that cotton quality can be affected by a host of factors from the time it is planted until it arrives at the mill. Insect damage can reduce fiber quality; early defoliation may cause an excessive amount of immature fibers; improper mechanical harvesting can result in trashy samples and picker twists; and poor ginning may further reduce quality. All of these things, said Mr. Moore, add up to a high nep count at the mill, high manufacturing waste, yarn strength and yarn appearance below specifications, and increased labor requirements to keep the mill machinery in operation.

"To prevent such things as this requires cooperation and research and doing the best with what we have," he said. "We know a good bit about the individual effects of various practices but very little about the complications which could come from the cumulative effects of insect control, production practices, harvesting equipment, and ginning. Research of this type is badly needed and long overdue," he declared.

"Basic to any research program on cotton is a means for evaluating the results," Mr. Moore continued. "Rapid, economical measurements for the potential spinning performance of cotton is one of our most crucial needs. More and more, people are convinced that if a practical solution is found for this one, many of our problems with respect to the relationship of production, ginning, and marketing to manufacturing will clear up rapidly. A better yardstick for measuring quality would mean much to the whole field of raw cotton; and, moreover, it would provide an incentive for quality.

"Today, when a farmer decides what cotton to plant, the cultural practices to follow, or what care to take in harvesting, we surely can't expect him to be influenced by any quality consideration other than those which will be measured in the channels of trade and for which he gets a premium.

"When a gin machinery manufacturer sells a piece of equipment, or the ginner buys and operates it, we can't expect either one of them to be too much concerned with any kind of quality besides that which the merchant will measure and pay for when he buys the cotton.

"And, the merchant can only use those tools of measurement which are actually available on a practical basis.

"On the other hand, if we had adequate tools for evaluation, think what it would mean to everyone, everywhere, who is doing research in which the quality of raw cotton is involved. Think of the cotton breeder, the irrigation engineer, the entomologist, the ginning engineer, or the farm implement manufacturer, just to name a few.

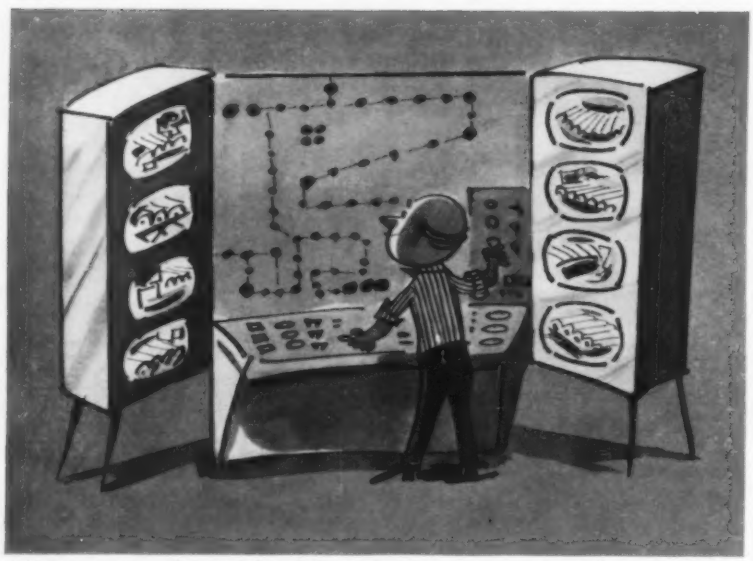
"Without adequate means for measuring quality, how can we expect these people to be too concerned with the effects of their developments upon the quality of cotton and translate these effects into what they will really mean to the industry when we can't really tell them how to measure quality in the first place?

"Only with spinning, weaving, and dyeing tests can we come reasonably close to giving a meaningful measure of what a development would mean to cotton, and these are often feasible only after the research has gone to a very advanced stage. So, this problem reaches throughout our industry.

"If we had practical ways to quickly and inexpensively measure more of the real quality of raw cotton, we could revolutionize the efforts which are being made to improve and preserve quality. This all boils down to the basic fact that we need research to provide tools for research."

# The Textile Mill of 1968

## *How will automation affect your mill?*



Artist's conception of control board for automatic conveyor system in future textile mill.

by R. E. Parker
*Textile Application Engineer*
*General Electric Co.*

Exclusive

THE completely automatic textile mill is probably in the very distant future, beyond our lifetime. However, steps toward this goal are inevitable and surely year by year mills will be adopting new automatic techniques in order to produce more products of better quality at less cost.

This process is bound to be a gradual evolution, rather than a sudden revolution in the industry. The reasons are very simple. First, automation can cost tremendous amounts of money. Therefore, each step will have to be examined carefully and economically justified before it is adopted.

Second, the technology necessary to permit automation of certain processes will not be suddenly revealed to us but will require years of engineering and scientific effort. In some cases completely new concepts for producing the product and even new ideas concerning the type of product to be produced are necessary before automation is possible.

Although automation is expected to come in gradual steps, let us jump ahead ten years to 1968 and see how some areas of the textile mill have been affected by the new automation techniques we were talking about back in 1958. As we go into the various mill areas to see how things have changed in the past ten years, I will emphasize the electrical phase, which is certainly a dominant factor in the trend toward automation.

*Spinning.* To get started, let's go into the area of the mill where fibers are converted to yarn. Immediately we notice the great conveyor systems which are moving the material in process from one mill area to the next. Operators are still feeding and unloading the material from many of the machines. However, this conveyor system which delivers the rolls of picker lap, cans of sliver, and boxes of bobbins directly to the machines greatly reduces the material handling effort. We note that no storage areas are required for the materials in various stages of process. Instead all of the storage is on the conveyor which runs overhead and requires no floor space.

Much of the conveyor operation is automatic, with photoelectric relays to start and stop the various sections as necessary to feed the material at the required rate. In addition, where different types of material are handled on the same conveyor, colored tags are used to identify each batch, and color-sensitive photoelectric relays sidetrack it to the correct machine.

In addition, a man in a master control room on the balcony functions like a train dispatcher. From here he can control the speed of each conveyor section and the various transfer points. A complete layout of the conveyor system with indicating lights tells him what's going on throughout the system. In addition, he can observe

the immediate area from the window and several television pictures show him what is going on in other rooms and areas beyond his direct vision.

The individual adjustable speed drives, photoelectric relays, and master control room are the electrical contributions to this conveyor system, which results in reduced material handling labor, reduced storage space, and smoother flow of material.

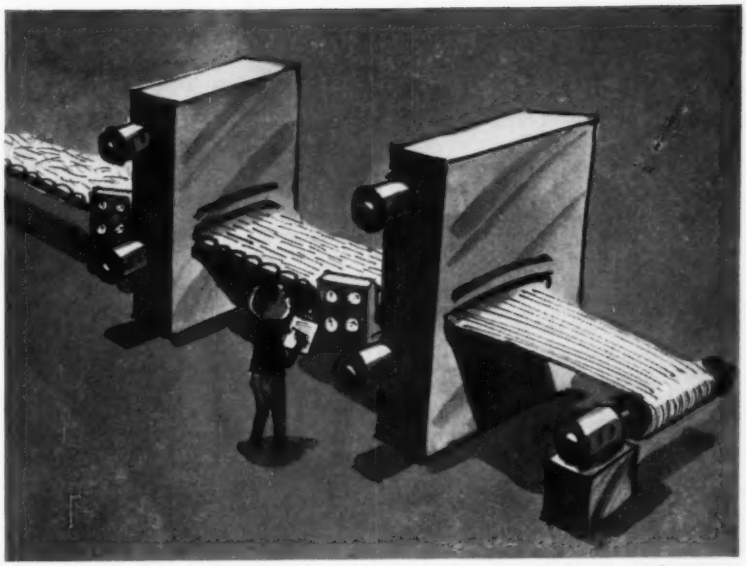
*Warp Preparation.* In the warper and slasher room we find better tension control of the individual yarns, resulting in less warp stops at the loom. At the warper, hysteresis tension brakes are applied to the creels to maintain constant tension in the individual yarn. This means that each end on a beam is equally stressed. Likewise on a slasher a constant tension let-off on the section beams assures uniform stress in each yarn on the loom beam.

The constant tension windup at the end of the slasher, which was in use even before 1958, continues to give uniformly packed beams with constant tension from empty to full. Since each yarn is prestressed the same amount, the loom subjects each yarn to the same total tension during the weaving process. Consequently warp stops due to excessive tension in some yarns are greatly reduced. Likewise the cloth produced is of better quality since it has no tight threads.

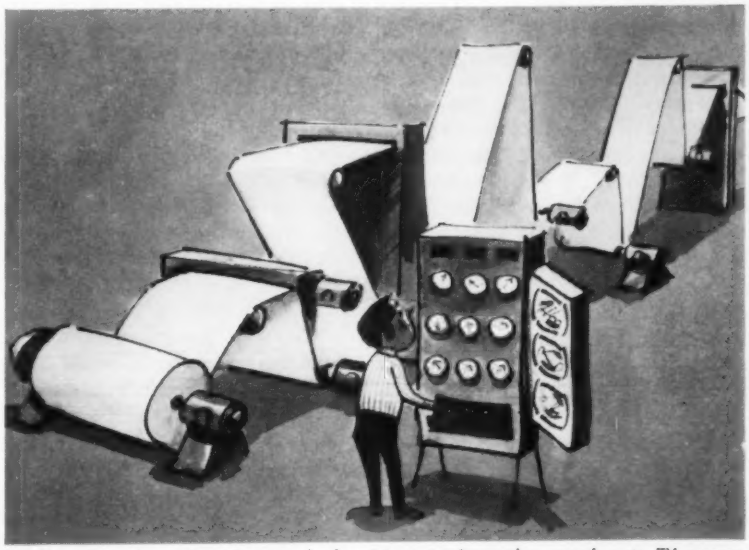
Thus by adding the hysteresis tension brake on the warper and the constant tension let-off on the slasher to the adjustable speed systems and moisture controller which were used back in 1958, we are now producing better cloth with less down-time for repair of broken ends.

*Weaving.* In the weave room we see a lot of indicating lights on each loom to quickly tell the operator the cause of any stoppage. Each loom is equipped with an electrically operated clutch and brake, which is easily tied in with the numerous electric stop motions. Some of the signals associated with the stop motion, such as the index stop which requires a rotating switch, use contactless control. This contactless control replaces certain relays and limit switches and operates millions of times a year with no maintenance of electrical contacts.

This new electric equipment on the loom, including the electrically operated clutch and brake, the electrically operated stop motions with indicating lights, and contactless control reduces the labor of operating and maintaining the loom.



Automatic process of the future employs electrostatic alignment of fibers to produce yarns.



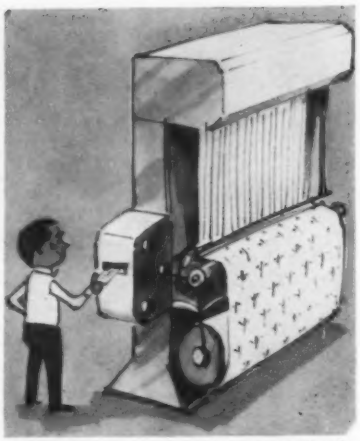
Finishing range has automatic control of moisture, tension, color, speed; note TV screens.

*Electrostatic Spinning.* Back in 1958 some experimental work was being done on the electrostatic alignment of fibers and the production of yarn without spinning. In this mill we see a production machine where the bulk fibers are entering and several hundred yarns are wound on a beam at the exit. At the first machine the fibers are electrostatically aligned into uniform strands. These strands enter the next machine where they are drafted to the proper size, im-

pregnated with some type of binder, dried, and wound onto the beams.

Each of these machines has individual drives, which are very closely coordinated with high accuracy transistor regulators to prevent breakage of the strands of fibers. Electric heat is used to dry the yarn, and the beam is wound at constant tension with an amplistat tension regulator.

This new machine greatly reduces the material handling required and permits great flexibility in the production of various yarn sizes because the adjustable speed drives permit easy changes in the draft.



Jacquard loom in a textile mill of the future uses punched card program controller.

*Nonwoven Fabrics.* Nonwoven fabric has become a very large business. New techniques permit these machines to run much faster. One of the features is the adjustable speed drive, which has very high accuracy regulators to keep the various sections in step. This is necessary because in the early stages of this process the web of fibers has no strength whatsoever. The present high speeds would not be possible without this accurate coordination. Electric heat is used to set the impregnating resin.

*Dyeing and Finishing.* In the finishing area the ranges are longer than ever in order to accommodate all of the new finishing processes required to make the types of cloth that customers are demanding. You will recall that back in 1958 the d-c motor adjustable speed drive with individual motors on each section was already in widespread use and some ranges had up to 60 motors. This trend continues, and today the ranges are more automatic in several respects.

The control of tension, stretch, and moisture is used in many more places in the finishing range. At places where the fabric is strong and it is permissible to make contact with it, a tensiometer is used to control relative speeds of sections. On the other hand, if the fabric can stand very little tension or is undergoing considerable stretch, a stretch indicator is preferred.

By controlling stretch or tension in certain phases of the finishing operation, it is possible to obtain more uniform processing and the finished cloth has the desired dimensional characteristics. Sometimes control of stretch or moisture affects profits, depending on whether the cloth is sold by the yard or by the pound.

Another new feature of this range is the automatic color controller in the dyeing machines. For years the mill has used a recording spectrophotometer in its laboratory to check dyes and cloth samples for color matching. This new color controller actually monitors the color as the cloth is being processed and automatically adds colors to the dye solution to maintain the correct color.

Since this is a very large range with some of the sections on the second floor, it is impossible for the man in charge to see the whole machine at once. However this problem is readily solved with television cameras located at critical points so one operator can observe the complete range from one location. This reduces the number of people required to operate the range to those necessary for performing actual work. It is no longer necessary to have extra people watching in case something goes wrong.

*Punched Card Control.* During the past ten years punched tape and punched card program controls have found their way into textile mills. The Jacquard loom, which has always used punched cards, is a natural application for the punched card program control. With this new control it is simply necessary to change the stack of cards to change the design being woven.

The simplicity of this new system permits the mill to be much more flexible in its operations, especially in the production of small quantities of different designs. Also, the storage area formerly required to keep existing designs in case of reorders is drastically reduced.

In knitting full-fashioned hosiery, the punched card control has replaced many of the systems of cams formerly required to cause the machine to automatically knit a stocking of the correct shape and size. With the new program control much time is saved in changing a design or size and the flexibility permits the mill to produce a much greater variety of designs to increase customer appeal.

*Printing.* In the area where cloth is printed, we find no large storeroom with several million dollars worth of copper rolls engraved with designs which might be reordered. Now the preparation of rolls is so easy that engraved rolls are not saved for long periods of time.

The new system employs a punched tape controller which with a special machine engraves the rolls automatically and quickly according to the instructions on the punched tape. This new system not only eliminates the tedious work of inscribing the design on the rolls but greatly reduces the investment in copper.

*Automation Already With Us.* As we examined various mill areas you no doubt noticed much electric equipment which was installed prior to 1958 which fits in very well with the new automation techniques. This indicates that mills have been taking definite steps toward automation for many years. In many cases these earlier steps make the application of the new automation techniques easier.

The use of individual motors on cards, draw frames, roving frames, and spinning frames simplifies the

installation of the conveyor systems because no overhead line shafts are in the way. The multimotor slasher drive, with its amplistat tension regulator, is still doing its job in conjunction with the new creel beam let-off drive. The adjustable voltage d-c range drive is still the backbone of automation in the finishing area, but it has been improved by the addition of certain new control and measuring elements.

Another important indication of the foresight of these mills back in the '40's and early '50's was the installation of modern power distribution systems. With the load center system it is a simple matter to expand the distribution system to provide the additional power required for faster, more automatic machines. Likewise, the reliability of this power system is an important factor in the success of automation in the textile mill.

This concludes our tour of mill operations in 1968. We have seen electric equipment which can act, watch, measure, control, and instruct. Some of the applications we saw may not come in exactly the form in which I've described them, but I am convinced that all of the various types of electric equipment that we saw will be used in textile mills of the future and probably in much more unusual ways than I have guessed.

*Is Automation for Your Mill?* To determine if these new techniques are applicable to your operation it will be essential for you to make numerous economic studies. In making these studies, I suggest that you disregard the old benchmark of what a loom should cost, for example, and compare the cost of production, including depreciation charges for the investment in machinery, for the various alternative ways of doing a job.

It is quite useless simply to compare the initial cost of automation with the conventional methods, because they are two entirely different things, just as a truck is different from a cart. The comparison should be strictly on the basis of the total cost of producing a given product, or in some cases the benefit of being able to produce something that could not be done by conventional methods.

By taking a positive view of automation I feel certain that you will find some operations in your mill where it is not only economically desirable to apply some of the techniques of automation but absolutely necessary in order to remain competitive and profitable in the future.

# Machine cuts mill's cloth packaging time 75%

■ A 75% DECREASE in the number of manhours required to package finished cloth for shipment has been realized at the Opelika plant of the Pepperell Manufacturing Company since the installation of roller and power belt conveyors and semi-automatic strapping machine, the Acme Steel Co., supplier of the equipment, reports.

The new system has enabled Pepperell to step-up the rate of packaging and integrate it more closely with production.

Previously, nine men were required to co-ordinate strapping, weighing, and tallying of packed containers with the production of finished cloth.

With the pushbutton strapping machine, one man can now strap, weigh, and tally 300 to 325 strapped boxes per day. The addition of a helper to weigh and place boxes on a conveyor moving to storage can add 75 to 100 additional containers to daily production.

Prior to the installation of the system, packed boxes had to be wheeled on carts to hand-strapping stations. The use of spur conveyors at shading tables enables packers to feed boxes onto the main conveyor line to the central strapping station in an uninterrupted flow.

Packaging begins at the shading tables where flat folded lengths of cloth are stacked on counters in matching shades. As they move past the shading tables, packers fill three-piece telescope boxes placed on a spur conveyor which travels along a rail between the tables and the main conveyor line.

When boxes are filled, they are moved from the spur conveyor onto the main roller line via angled connecting conveyor sections. Rear boxes "nudge" those at the head of the line onto a moving conveyor. The 6-foot belt conveyor catches the packed containers and carries them to the table of the strapping machine.

When the container full of cloth is in position, three straps have already been fed to within operator reach. He then inserts the straps into the strapping head and pushes another button lowering the platen, which compresses the contents of the telescope box. As soon as the platen exerts the desired, predetermined compression, another pushbutton tensions, seals, and cuts the steel strapping in a single operating cycle.

# Cut your bleaching costs

*while you cut defects and seconds*

by H. G. Smolens
*Technical Services Department*
*Industrial Division*
*Pennsalt Chemicals Corp.*

Exclusive

*Robert Yarnall Richie*

THE CONTINUOUS steam bleaching process, in use for more than fifteen years, has proved its value in almost every bleachery in the country, producing tremendous yardages of well bleached goods at very reasonable costs. The substantial increase in costs of original and replacement equipment in recent years has not altered this fact.

However, in every bleachery, even those with extensive experience in continuous peroxide bleaching, there are times when many yards of bleached goods come through with defects such as holes and weak spots, low brightness, and bleached goods which do not dye easily or well.

Local conditions, including changes in the bleachery water supply, variations in operating skill, differences in equipment quality and layout, and lack of general technical know-how, can be factors in these difficulties. There also may be some more fundamental causes, which should be taken into account by the bleachery staff. It is well to bear in mind that alkaline peroxide bleaching solutions, especially at elevated temperatures, are very sensitive to catalytic action. Such action, which usually decomposes the peroxide, is exothermic. The heat, generated in small local areas of cloth saturated with these solutions, can have a severe degrading action. The result is damaged fiber that often shows up as a hole after the cloth has been put under tension.

This catalytic action can come from natural sources, i.e. minerals in the soil of the cotton fields that leave a residue in the cotton fiber. It can also result from manufacturing contamination, such as rust, lubricants, specks of brass or copper, or from impurities in the chemicals and steam used in the bleachery. The possibility of de-

This is the second in a series of articles by Mr. Smolens on continuous peroxide bleaching; the first appeared in TEXTILE INDUSTRIES for May, 1957, pages 114-115.

gradation is greater as the chemical concentration in the peroxide saturator increases, and as the temperature at which the bleaching is conducted, rises.

In view of these contaminations, over which the bleacher has little or no control, it is advisable, and sometimes necessary, that the continuous bleaching process be designed to allow for the least amount of actual peroxide bleaching. This will provide the lowest concentration of peroxide bleaching chemicals in the cloth and thereby reduce the hazard of chemical damage. Furthermore, the chemical cost is reduced.

TO PRODUCE the best quality bleached goods at the lowest chemical cost, all impurities and other undesirable non-cotton constituents of grey goods should be removed, insofar as is possible, before the goods are actually saturated with the peroxide solution for steam bleaching. This is becoming more and more important with the increasing use of chemical fertilizers, insecticides, and defoliants in the cotton fields and the expanding use of mechanical cotton pickers.

Every bleachery is accustomed to seeing different shades of whiteness on different fabrics, which go through the same continuous bleaching process. When, however, one or all of the fabrics, after bleaching, look dull or dingy, and when this condition is not corrected by using higher chemical concentrations in the saturators, it is likely that something in the cloth and/or in the bleaching solutions is resisting the action of the bleach. Unusual resistance can be due to various factors, such as (1) abnormally high alkaline earth metallic content of the cotton, (2) increase in the bleachery water hardness, (3) impurities in the caustic soda, (4) impurities in the silicate of soda, and (5) incompatability of additives to the bleaching solutions with the basic bleaching chemicals.

Locating the cause of these troubles is more a matter of experience and simple testing than of scientific investigation. A check on the water hardness and clearness is important. The cloth should be ashed and the ash checked for water soluble and acid soluble constituents. Samples should be taken just before the caustic saturation, just before the peroxide saturation, and from the white bin. Absorbency tests at various stages of the bleaching procedure are also important. A correct interpretation of the results of these tests and of any others that may be indicated will usually reveal where the trouble starts and how it can be corrected.

CLOTH that has been treated in a continuous peroxide bleach often seems perfectly satisfactory for whiteness and general appearance until it is dyed, especially when the dyeing is continuous. Poor dyeability in general shows up either as lighter than the desired shade due to underabsorbence, or darker than the desired shade due to overabsorbence. The latter condition, which is not too prevalent, usually shows physical damage to the fiber, such as rub marks or surface breaks, and is not due to the actual bleaching effect.

Poor dyeability due to lack of absorbency may be due to a number of causes. One is the incomplete or uneven removal of non-cotton, especially wax, during the bleaching operation. If a sample of cloth that shows resist in dyeing is scoured or boiled out with caustic soda and then dyes well, its resist is due to poor wax removal. This condition indicates that the cloth is not picking up enough caustic soda from the saturator or is not picking it up evenly. It may also show a too-low temperature on the cloth or a too-short storage period in the caustic J-box or steamer.

If a treatment with warm hydrochloric acid alone, or an acid treatment followed by an alkaline treatment, allows the cloth to dye well, the resist is probably due to hardness in the cloth originally, in the chemicals used in the bleaching, or in the bleachery water.

If a final treatment with hydrofluoric acid is required to clear up the cloth for dyeing, the resist is most likely due to the presence of an alkaline earth silicate or plain silica in the cloth. This is the most troublesome type of resist, because it is the most difficult to correct. It is usually due to something on the cloth that goes into the peroxide saturator and which precipitates a silicate or breaks the silicate and deposits silica. Neither of these is removed even by the best hot washing after bleaching and when dried into the cloth, presents a real problem for the dye house.

THERE ARE several ways of reducing or preventing dyeing troubles due to silicate. One is to remove the silicate entirely from the bleaching operation. This is not too satisfactory, and it usually raises the chemical cost of the bleaching to an exorbitant figure. A better way is to introduce into the peroxide bleaching solution an inorganic or organic stabilizer that is compatible with silicate and the other chemicals used. This prevents any undesirable effects that ordinarily come with the use of silicate.

It is easily possible to reduce the amount of silicate needed for an effective and efficient peroxide saturator charge to a point where it will not cause any trouble at all. This type of low silicate stabilized peroxide bleaching solution can be made up at a high enough pH (over 10.5) to allow maximum value from a minimum peroxide concentration. In this way there is no real change in the type of bleaching solution ordinarily used in that the total at the optimum figure for the bleaching range and the pH are the same.

From the standpoints of color, freedom from degradation, uniformity of quality, and dyeability, the most efficient continuous peroxide bleaching of cotton piece goods currently in use takes the cloth through the following routing: singe, desize, wash (the non-cotton should be below 0.5%), sour with hydrochloric acid, wash, saturate with caustic soda, steam heat for about one hour, wash (the ash should be below 0.1%), saturate with alkaline peroxide at pH over 10.5, steam heat for about one hour, and wash.

Any short cuts in the above routing, omission of one or more of the treatments, or inefficiency in any one of them will not only increase the liability of poor work and difficulty of dyeing but will also raise the chemical cost and up the percentage of seconds.

# Organized testing did

*How Pharr Yarn Mills minimized customer*

All critical tests, including wool analyses, are certified by U. S. Testing Co. Here Jim Ashworth of U. S. Testing hands report to George R. Culberson, Pharr Mills lab head.

Mr. Ashworth checks bone-dry weights. Note proximity of scales to oven, which minimizes changes in sample weight before weighing.

## Staff prepared

## Exclusive

FIVE YEARS ago, 50 per cent of effort in the laboratory at Pharr Yarn Mills, McAdenville, N. C., was spent in trying to determine what was wrong when a customer complaint was received. Now, items like twister doubling, overply, underply, tension faults, and small items comprise a vast majority of the problems confronting the laboratory.

Customer compliants today are practically non-existent as compared to several years ago. The improvement is attributed to an organized quality control program supported by overseers and superintendents. The program has the endorsement and full support of William J. Pharr, Sr., executive vice-president, and W. Otis Lucas, general superintendent.

A definite program is followed, but interruptions are permitted for any priority difficulty.

Standard operating procedure is as follows:

*Monday:* Check all sliver on Pacific Evenness Tester (with integrator) to obtain average uniformity on a 20-yard sample. If a sample varies as much as 10 per cent from established standards (which were established over a period of time) the trouble is sought immediately. Stock is removed from machines in production and is tested within the hour. As improvements are made in manufacturing procedure, standards are upgraded accordingly.

*Tuesday:* Check all roving for weight, twist, and evenness.

*Wednesday:* Check all yarns for size, twist, and evenness.

*Thursday, Friday,* and *Saturday:* Standard procedure is repeated as for Monday, Tuesday, and Wednesday. Each new count of yarn (or new order) calls for complete testing procedure. All critical tests (such as wool analyses) are certified by U. S. Testing Company.

By using tests, optimum machine speeds are determined (also optimum drafts). Different fibers show different drafting characteristics. For example: Starting with 50-grain sliver, different drafts are tried on slubber and spinning to determine which gives most uniform work.

In producing the desired hank roving it may be necessary to start with a different grain sliver. A customized processing system is used in accordance with fiber demands and end results desired for this mill group. Cotton yarns are made on the straight cotton system, and a modified worsted system is used for other yarns.

All cotton yarns are tested for skein break (all cotton 1 1/16″ SM), and these tests serve as verification for correct cotton grade and staple and would quickly reveal any deviation in grade and staple.

In making high-bulk Orlon yarn, shrinkage from current production is checked each day, and sliver shrinkage from each carton of tow is also checked each day. A 50-inch piece of sliver hanging on a board at the Turbo machine is measured on the spot after shrinking and must fall between two preset lines to determine correct shrinkage in the yarn. The yarn is also checked as a double precaution. Any variation from standard, day or night, is reported immediately.

In one instance, substantial savings (several thousands of dollars) were effected when a sample of fabric was returned with a complaint and the laboratory analysis showed mixed yarn was made on a different system of manufacturing (by some other mill), which immediately exonerated this mill from any liability.

Sometimes streaks in knitted fabrics have been traced to un-

# *a job*

## *complaints*

even tension on the knitting machine feeds. Daily occurrences more than justify work of the laboratory crew (headed by George R. Culberson). On basis of cost per pound of production, the overhead attributable to laboratory operations is negligible.

Machine maintenance is affected by the laboratory, in that the laboratory is often able to discover foreign material under the drafting aprons, worn gears, bent or broken pins in faller bars on Pin Drafter; testing cotton laps even shows up dirty belts on pickers (this is one of the first items checked when lap yard-to-yard weight starts fluctuating). Repairs on machines are sometimes made based on findings in the laboratory.

Improved quality, eliminating customer complaints, cutting costs by eliminating operations where not necessary, improving quality by increasing costs and adding operations where found necessary to get desired results, all add up to indicate the laboratory is a worthwhile asset and earns its place in this well-run mill organization.

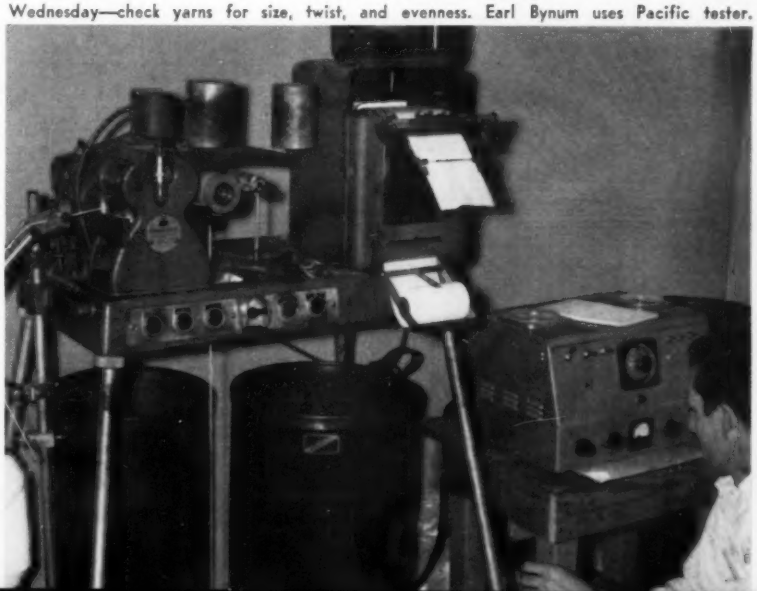
Nobody usually hears about the troubles that were by-passed by laboratory personnel and program being on the toes.

The mill group in this instance includes four divisions, including Stowe Mills, Pharr Yarns, Pharr Worsted, and Spencer Mountain Mills. These mills make carded cotton 30-40s single and ply; combed cotton 4s-30s, single and ply; knitting yarns; worsted yarns (sweater and jersey) and worsted weaving yarns, 64s quality; quarter blood worsted yarns for hand knitting and men's outerwear; 100% Orlon, single and ply, jersey and sweater yarns (high bulk Turbo converted); 80% Orlon, 20% wool high bulk for jersey trade; regular Orlon; Acrilan and wool blends; 100% Acrilan; nylon, types 200 and 201; and 100% nylon carpet yarns.

Monday—check all sliver on Pacific Evenness Tester, with Integrator; 20-yd sample is used.

Tuesday—check roving for weight, twist, and evenness. Here, Howard Spencer weighs sample.

Wednesday—check yarns for size, twist, and evenness. Earl Bynum uses Pacific tester.



# How much twist do you

by John Duerst
Exclusive

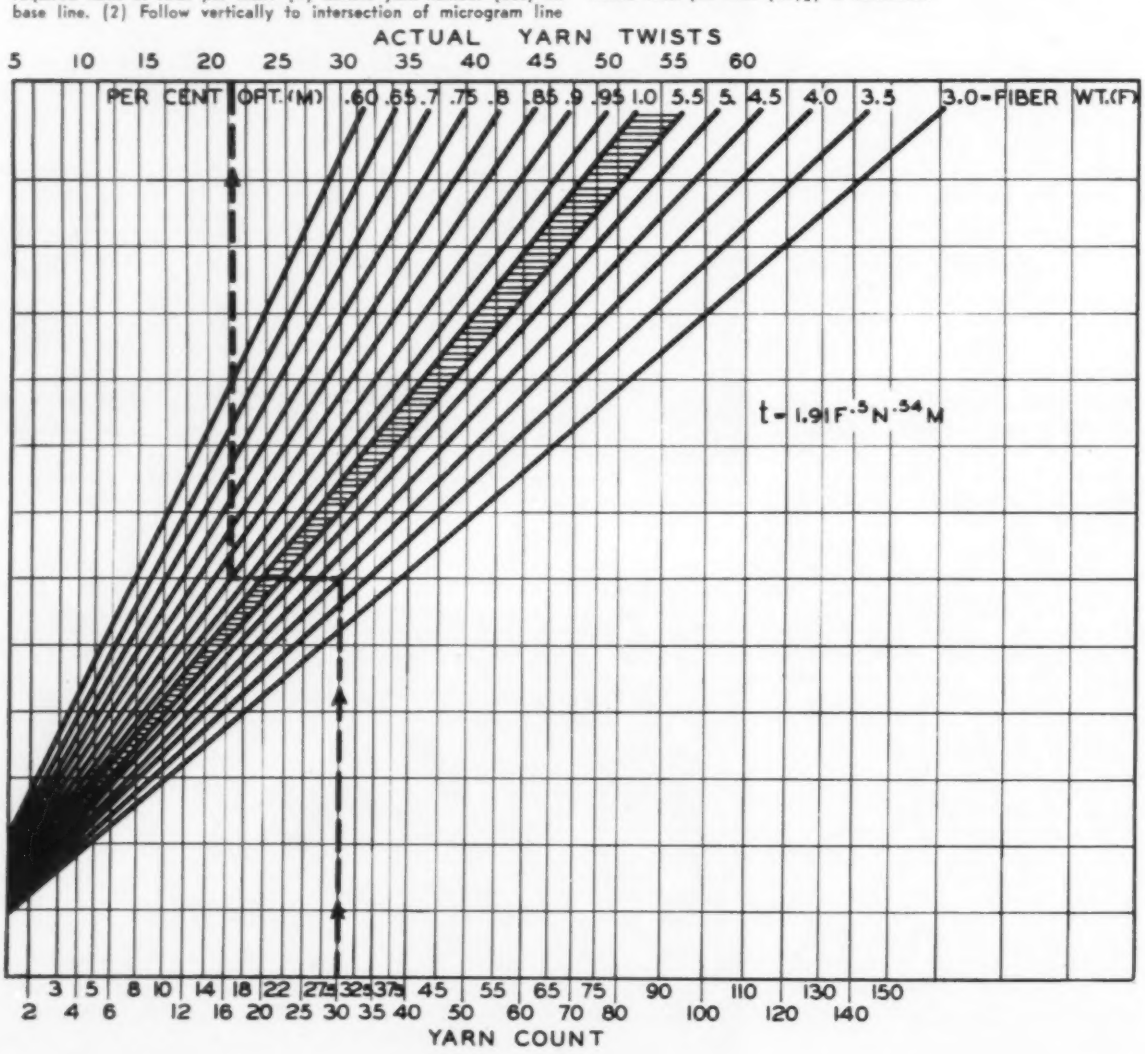
TWIST per inch in yarn is a fiber-yarn surface function.

Specific fiber surface area, fiber weight, fiber length, and numbers of fibers are ingredients to be observed when formulating optimum yarn twists. There is strong evidence that fiber strength too must be considered.

Suppose we contemplate a hypothetical yarn processed with fibers of very little strength. Comparatively little twist would be needed to match the developed fiber surface strength with the cross sectional breaking strength. Thus, the basically required ingredients to formulate optimum twists are several and are difficult to obtain and measure.

It is, therefore, of great advantage to promote simplified formulas that lend themselves

Fig. 1. Nomograph for determining desired amount of yarn twist. Example: A 30s yarn is to be spun of cotton with a fineness of 4.0 micrograms per inch, at 90 per cent of optimum twist. What is the required turns of twist per inch? (1) Locate yarn number (30s) on base line. (2) Follow vertically to intersection of microgram line (4.0—on broken line in the example). (3) From this point go to left horizontally until reaching diagonal of specified percentage of optimum twist (.90). (4) Proceed vertically to top of nomograph, where twist per inch (21½) is indicated.



# put in roving and yarn?

more readily to practical application.

Such a twist formula recently developed is, for optimum yarn twists:

$$t_o = 1.91\ N^{.54}\ F^{.5} \qquad (1)$$

For general yarn twists:

$$t = 1.91\ MN^{.54}\ F^{.5} \qquad (2)$$

Where

N = yarn number

F = micrograms per one inch of fiber

M = percentage index of optimum twist

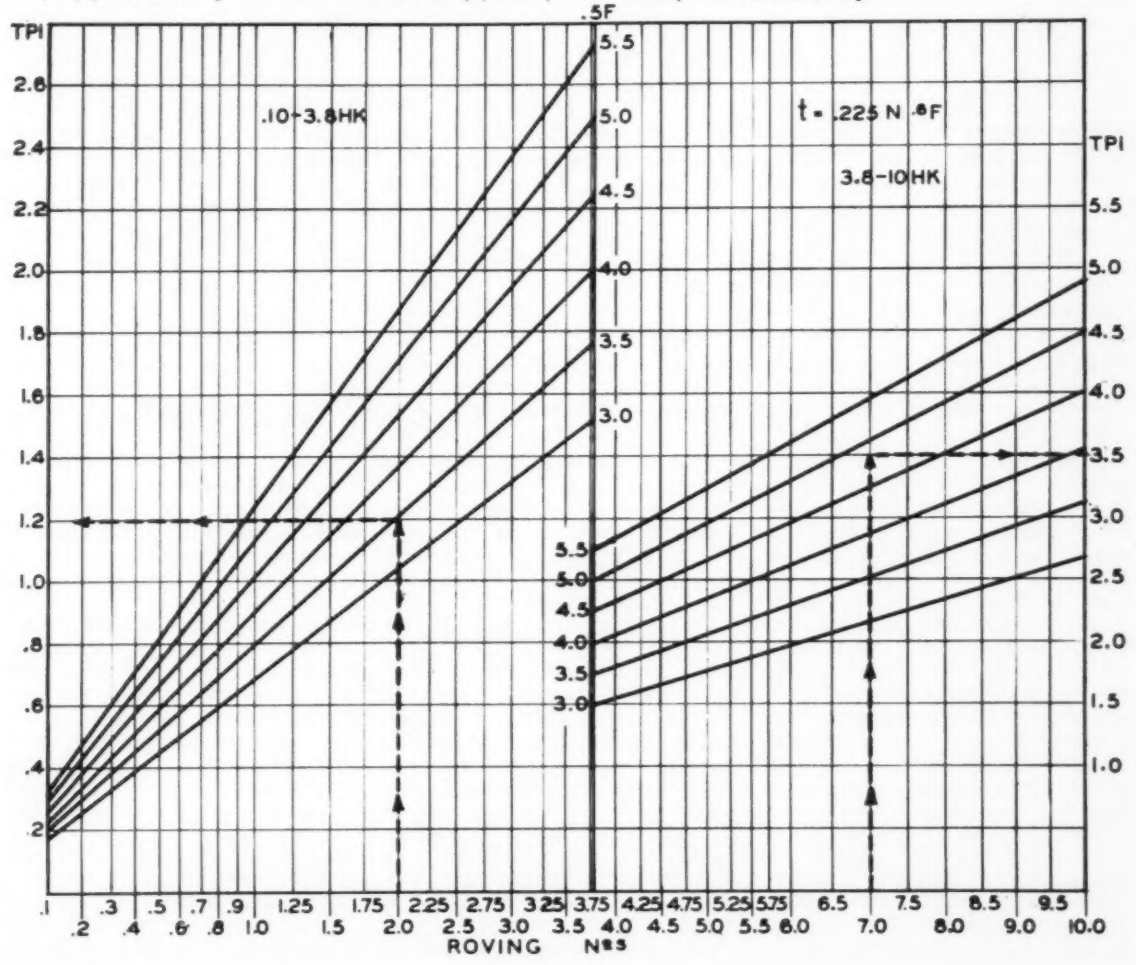
To be sure, the exponent .54 may prove a stumbling block to some, but ready-made nomographs, slide rules, and tables can easily be compiled for reference.

Formula (2) is the simplified version of the original optimum twist formula described in TEXTILE INDUSTRIES for March, 1956, p. 145. The formula includes the twist-fiber weight relationship.

It is also to be understood that Formula (2) is applicable to "normal" present commercial cotton types. For experimental and short cottons (doughnut shaped fibers) the original formula would have to be applied.

The percentage factor "M" is an adoption of some European mills, who call their main line of twists the 100% line, with "M" = 1.00. Other lines, depending on the commercial twist hardness, have "M"

Fig. 2. Nomograph for determining desired amount of roving twist. Example: A 2.0-hank roving is to be made of cotton with a fineness of 3.5 micrograms per inch. What twist should be inserted (medium twist)? (1) Locate roving hank counts on base line. (2) Go up vertically (broken line in example) to intersect microgram diagonal. (3) Turn horizontally to left, where twist per inch can be read. For roving of 3.8 hank or finer, use the right hand side of the nomograph —see example for 7.0-hank roving.



**HERE ARE VARIOUS ROVING AND YARN TWIST FORMULAS BEING USED**

ROVING TWIST FORMULAS

| | | | | |
|---|---|---|---|---|
| 1. | Koechlin | 1828 | $t = M N^{.50}$ | Europe |
| 2. | Staub | 1900 | $t = M N^{.60}$ | Europe |
| 3. | Laetsch | 1905 | $t = M N^{.65}$ | Europe |
| 4. | Duerst | 1939 | $t = M (\sqrt{1 + 8N} - 1)$ | "Cotton" |
| 5. | Corley | 1953 | $t = M N^{.667} F^{.5}$ | New Orleans |
| 6. | Heiberg | 1956 | $t = M 2.2 N^{.667}$ | 100% System |
| 7. | Duerst | 1958 | $t = M .225 N^{.6} F$ | This article |

$t$ = Twist per inch
$M$ = Twist multiplier or coefficient
$N$ = Yarn No. (hank counts)
$F$ = Micronaire—fiber weight (curvilinear—upland scale)
$L$ = Classer's staple length

For 1; 2; 3; (M) varies according to material
4. (M) contains staple length as an ingredient. This (M) was given originally as .36 (2.39 — L) and later slightly altered to .286 (2.8 — L)
5. (M) = .50/L
6. (M) is an accepted percentage of the 100% line
7. (M) is 1.00 for medium twists, slightly higher for harder twists and lower for softer twists

YARN TWIST FORMULAS

| | | | | |
|---|---|---|---|---|
| 1. | Koechlin | 1828 | $t = M N^{.50}$ | also $M \sqrt{N}$ |
| 2. | Staub | 1900 | $t = M N^{.60}$ | |
| 3. | Laetsch | 1905 | $t = M N^{.72}$ | and $M N^{.785}$ |
| 4. | Laetsch | 1905 | $t = M N^{.70}$ | as used for "Twistor" |
| 5. | Brandt | 1935 | $t = M N^{.667}$ | |
| 6. | Duerst | 1939 | $t = M (\sqrt{1 + 8N} - 1)$ | (5 — L) |
| 7. | Heiberg | 1956 | $t = M 2.2 N^{.667}$ | "100% System" |
| 8. | Landstreet | 1957 | $t = M N^{.54}$ | |
| 9. | Duerst | 1958 | $t = M 1.91 N^{.54} F^{.50}$ | This article |

$t$ = Twist per inch
$M$ = Twist multiplier or coefficient
$N$ = Yarn number
$F$ = Micronaire—fiber weight (curvilinear—upland scale)
$L$ = Classer's staple length

1. (M) varies according to material
2. (M) varies according to material
3. (M) varies according to material
4. (M) varies according to material
5. (M) varies according to material
6. (M) indicates desired twist - hardness degree
7. (M) desired percentage of the standardized 100% twists
8. (M) varies according to material
9. (M) indicates desired percentage of optimum twists

values prefixed as 1.06, 1.12, .94, .88, etc.

From Fig. 1, optimum twist for yarn numbers 1-100 may be read for several cotton fiber weights "F." When obtained, simply multiply the optimum twists with the percentage factor of local designation. For yarns, later made into thread for instance, 75% or .75 for "M" is most common.

*Roving Twists.* Roving twists are never of optimum capacity. The loose density of roving strands plays havoc with principles applicable to optimum twisted yarns.

At first glance, the simplified roving twist formula looks much like the yarn twist formula—but not quite. For medium roving twist:

$$t = .225\ N^{.6}\ F \qquad (3)$$

Unlike yarn twists, the roving twists are proportional to full one-inch fiber weights, while for yarn twists the proportion is between twist and square root of fiber weights. The roving exponent is .6, as against the yarn exponent of .54. Fig. 2 depicts medium twisted rovings from 1 to 10 hank-counts for several popular fiber weights "F."

# Productivity is key to prosperity, Canadian mill men hear

■ CANADIANS face continuing prosperity, H. Roy Crabtree, president of the Primary Textiles Institute, declared recently; but he warned against taking this good future for granted.

Mr. Crabtree, who is also president of Woods Manufacturing Co. Ltd., of Montreal, said that productivity is the key to future prosperity, and that good relations between management and labor are essential.

"We must also see to it that avenues of trade are kept clear and open but that unfair competition from abroad is not allowed to destroy our domestic producers," he continued.

After stressing the dangers of complacency, Mr. Crabtree said that there are other attitudes that must be maintained if Canadians are to realize their destiny.

"We must watch carefully the growth of taxes which inevitably means the growth of government, guard against inflation, and advance slowly and not commit ourselves in a manner which might bankrupt our future."

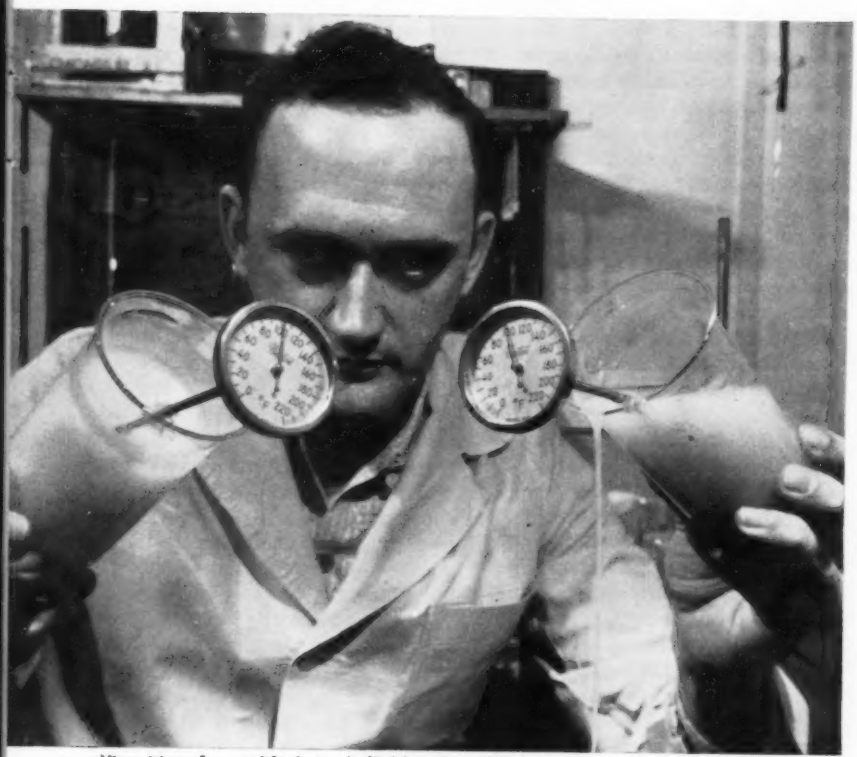
Mr. Crabtree said he agreed with economists who described the current business recession as "a pause in the upward movement of the economy."

In discussing management-labor relations, the industrialist warned labor against pricing itself out of the market. "Wages are rising faster than productivity. There is already evidence of stiffening resistance to prices."

The problem calls for continued technological development by management, reasonable demands by labor, and no added government expenditures which do not contribute to productivity, he said.

Competition from foreign sources is seriously affecting certain segments of the Canadian economy, Mr. Crabtree said, using the primary textile industry as an example.

"It must be possible to alleviate many problems by exercising closer control over the tariff classification of imports, by strengthening the regulations to prevent imports at dump prices, and by investigating promptly imports suspected of evading dumping duties."



Viscosities of unmodified starch (left) and modified starch are compared at the same concentration at 100 F. The modified starch pours from beaker; the regular starch is congealed.

# Starch derivatives

## *offer savings and processing advantages in textile uses*

by Earl King
and Gordon Wood
*Corn Products Refining Co.*

Exclusive

QUICKER cooking, more stable viscosities, easier desizing, greater clarity of film, and the ability to use less expensive dyestuffs are advantages we have found that the new chemically modified derivatives of starch have over conventional starches commonly used in textile applications.

The new materials, especially developed for use in the manufacture of fabrics of both natural and synthetic fibers, offer additional protection to the yarns during weaving and result in a number of processing economies for textile manufacturers. They have also been found to offer improved properties in warp sizing, finishing, sizing and polishing cordage, twine, and sewing threads, and many other operations.

In warp sizing, starch derivatives cook completely and quickly, requiring no more than a 30-minute boil; ordinary starches are normally boiled for at least an hour and in some cases do not reach stable viscosity in less than an hour and a half. Then too, hot paste viscosities remain stable even under conditions of prolonged heating and circulation. The pastes neither congeal nor form rigid gels when application temperatures are low, even at 120 F or lower.

We have also found that fabrics when warp sized with the new products are more easily desized than are fabrics with warps sized with conventional starches. The enzyme desizing process can at times be replaced by the direct use of the soap boil-off and conducted at considerably lower temperatures than are normally required.

Still another advantage is that more economic dyestuffs can be used in dyeing yarns that are to be sized with the new materials, because the lower temperatures used in the sizing and desizing operations greatly reduce the bleeding, or loss of color, ordinarily experienced in these processes.

And finally, the clarity of film produced by the derivative sizes is an advantage in the sizing of colored warp. The transparency of the sizing does not in any way mask the colors in either the bright tones or the pastel shades which are so prevalent in modern fabrics.

In the warp sizing of denims and similar fabrics, the new substances may be used at much lower temperatures than the ordinary starch sizes. One of the products, cooked at a concentration of one pound to one gallon of water, has the same paste viscosity at 100 F as ordinary thin-boiling starches of 40 fluidity of the same concentration at 202 F.

THE CUSTOMARY temperature used in warp sizing denims, or other yarns except worsteds, is between 200 and 204 F when using the usual thin-boiling starches. With the use of the derivatives, the temperature can be reduced to 100 F or less, allowing the use of the derivatives on ticking, flannels and on dyed yarns for weaving into fabrics, including cottons, spun rayon blends, and worsteds.

In combed and worsted yarns the suitability of the new materials is established. In combed yarn warp sizing, besides being uniform and having good viscosity, the derivatives are noncongealing; conventional starches, while lower in

price, are also lower in uniformity and viscosity stability.

Successful runs with a number of the new substances in worsted yarn warp sizing have shown that concentrations of 1.3 to 1.6 pounds per finished gallon, at temperatures of 165 F or less in the size box, are satisfactory for the proper depositing of the correct amount of size on the yarn.

Use of the starch products in the warp sizing of synthetic yarn blends has proved highly successful, also. For one thing, the new materials in paste form are compatible with the adjuncts used in the usual process, a factor of great importance.

THE USE of the starch substances in the finishing processes in the textile industry is also well established. This is true not only of the finishing of denims, ticking, and flannels, but also in resin finishing.

In the finishing of denims, ticking and flannels, the ordinary starches require use of a minimum temperature of 160 F. The new starch materials allow this process to be carried out at room temperature (100 F or less) resulting in less loss of color.

In resin finishing, using starch with the quick curing, or polymerizing, resins a concentration of one-half pound to one pound of finished size must be maintained. The size must be noncongealing, or free flowing, at temperatures from room temperature to 120 F before the resin, catalyst, and softener are added. At higher temperatures, the resin polymerizes too rapidly.

The new starch products have proved ideal for such an application because they can be used at the lower temperatures with complete satisfaction. Selection of the exact product to be used depends on the stiffness required. Fluidity from 40 to 80 may be utilized.

In the sizing and polishing of cordage, twine and sewing thread, the new materials have also made a place for themselves. Among the advantages of use in this field are the greater uniformity and viscosity stability possible with the derivatives compared with unmodified starches. Such use also requires less cooking time and permits the use of less softener in formulations using the starch substances.

IN USING the new products in warp sizing it is possible to use only 3% wax (by weight) as softener*.

If an unmodified starch, after boiling for 30 minutes to an hour, is used in a homogenizer at 2,000 psi, the new replacement requires only a five-minute boil and is pumped through the homogenizer at 200 to 400 psi**. Little pumping difficulty is experienced with the new substance, and the paste drains easily from the equipment when cooked at a pound or more to the gallon.

Another advantage of the new materials over ordinary materials is the fact that there is less build-up of congealed or hard size on the sides, edges, and in the corners of the size box. There is also less difficulty with squeeze roll marks.

Although our starch derivatives have been in use a comparatively short time, we feel that they have already proved their superiority to conventional starches in textile applications. These specially developed, chemically modified starches have demonstrated their ability to overcome a wide range of warp sizing and finishing problems, and have made possible substantial operating economies.

*The mills have increased the amount of wax used to about 5% to 6%.—The Editors.

**Standard mill practice is to bring the unmodified starches to a boil and pump them through the homogenizer immediately without any further boiling. A few mills may boil from five minutes to as long as twenty minutes before running the size through the homogenizer, but standard practice is simply to bring to a boil and there is no necessity for doing more than this.—The Editors.

## Acid-thowing in labor disputes is nothing new, he says

by Frank Vogel

Exclusive

■ THE WHOLE COUNTRY was shocked by the acid-throwing incident some time ago, in which a newsman was blinded. However, it is interesting to note that throwing acid in the faces of individuals opposed to strikes was apparently already a habit in textile labor disputes in England a hundred years ago.

In the third edition of "The Philosophy of Manufactures—An Exposition on the Factory System of Great Britain," by Andrew Ure, published in 1861, appears the following passage, written in the flowery language of the day:

"Philosophers, in every age of the world, have contrasted the supineness of the beneficent principle in man, with the activity of the malevolent; but, satisfied with stating the fact, they left it as a problem for revelation to solve. Proud of the power of malefaction, many of the cotton-spinners, though better paid, as we have shown, than any similar set of artisans in the world, organized the machinery of strikes through all the gradations of their people, *terrifying* or *cajoling* the timid or the passive among them to join their vindictive union. They boasted of possessing a dark tribunal, by the mandates of which they could paralyze every mill whose master did not comply with their wishes, and so bring ruin on the man who had given them profitable employment for many a year. By flattery or intimidation, they levied contributions from their associates in the privileged mills, which they suffered to proceed, in order to furnish spare funds for the maintenance of the idle during the decreed suspension of labour. In this extraordinary state of things, when the inventive head and the sustaining heart of trade were held in bondage by the unruly lower members, a destructive spirit began to display itself among some partisans of the union. Acts of singular atrocity were committed, sometimes with weapons fit only for demons to wield, such as corrosive oil of vitriol dashed in the faces of most meritorious individuals, with the effect of disfiguring their persons, and burning their eyes out of the sockets with dreadful agony."

*You can evaluate cotton quality or processing equipment with*

# SPINNING TESTS

*Purpose of a spinning test*

*Planning a spinning test*

*Types of spinning tests*

*What to measure?*

*Statistical techniques*

*What size sample?*

*What do the results mean?*

by H. W. Little, L. A. Fiori, and J. E. Sands
*Southern Regional Research Laboratory* New Orleans, La.*

Exclusive

THE TERM "spinning test" is commonly used to describe almost any textile processing test from a trial run using a small quantity of textile material to a planned experiment based on an elaborate statistical design requiring a complicated analysis. A spinning test usually consists of observing and measuring what happens on a small scale when a textile material is processed under certain conditions so that some idea may be gained as to what will happen under these same or similar conditions in full scale operation.

However, the successful application of a spinning test to actual problems is not as simple as has just been stated. An important reason for this is that the data resulting from the test are only a sample of the complete set of data that would result if it were taken for the whole operation. Because of the inherent variability present, to a greater or lesser degree, in all data a sample can only approximate the results of the actual operation.

These and other difficulties in no way invalidate the use of the spinning test, provided they are properly taken into consideration in planning the test and in analyzing the data. For example, variability can be measured and limits placed about test results within which actual results would be expected to fall with a high degree of confidence. The measurement of variability and reliability is just as important in making a spinning test as in the collection and analysis of any other type of data. The statistical principles involved are the same as in other fields of research and testing. However, as in other fields, the product and the process by which it is produced give rise to more or less specialized applications of general statistical principles.

In this article, the spinning test will be defined, various types of tests described, and their purposes explained. Methods of measuring reliability will be briefly indicated and the application of spinning tests will be illustrated by use of examples or case histories.

*Definition and Purpose of the Spinning Test.* As applied to the processing of cotton, a spinning test may be defined as the processing of a specific amount of cotton or cottons into intermediate or end textile products for the purpose of evaluating or correlating varietal characteristics, machinery influences, or processing performance. Some major purposes of spinning tests are the following:

1. To evaluate cotton varieties
2. To correlate fiber properties with product quality
3. To measure the efficiency of existing or improved processing organizations
4. To assess existing or new and improved machinery
5. To evaluate chemically modified cottons and damaged cottons

The spinning test serves a valuable function in the evaluation of the processing performance of cotton varieties, whether commercial or experimental. Cotton breeders have numerous samples evaluated each season for processing characteristics as an aid to selection for further breeding. Experimental varieties developed to the point of anticipated release for commercial production require intensive evaluation of a wide variety of processing characteristics. The relative processing merits of varieties in commercial use is essential or highly desirable information for mills in obtaining supplies for manufacture into various specific end uses.

As a tool in relating fiber properties with product quality, the spinning test is indispensable. As a matter of fact, the technology of relating properties to product quality exists largely because the spinning test could be used to accumulate appropriate data.

New and improved textile machinery developments must be subjected to the spinning test to evaluate their worthiness in a processing line. Chemically modified cotton fibers represent a relatively new area of research and accomplishment. The spinning test provides a quick means of determining their processability and product quality.

*Spinning Test Criteria.* In textile processing research and testing, as in research and testing in any field, various measures of quality and other characteristics

*One of the laboratories of the Southern Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture.

have been devised for use in evaluating the process or the product. Generally, the following measurements would be considered in the event a comprehensive spinning test is required:

1. Skein breaking strength of yarn
2. Single strand breaking strength of yarn
3. Elongation of yarn at break
4. Yarn appearance
5. Uniformity of slivers, roving, and yarns
6. Waste percentages at opening, picking, carding, and combing operations
7. Nep formation
8. Ends down in spinning, winding, and subsequent operations
9. General processing behavior (roll lapping tendencies, card loading tendencies, etc.)

*Types of Spinning Tests.* The varied purposes of spinning tests lead to the use of tests of various types depending upon the degree of precision required and obtainable, the number of criteria evaluated, and the amount of cotton needed or obtainable for the test. Spinning tests may be divided as to size or scope into the following four types:

1. Micro
2. Laboratory scale
3. Pilot scale
4. Mill scale

Generally the micro - spinning test uses only one-half pound of cotton or less and is used to evaluate small breeder samples. Criteria measured are usually grade and strength of single yarn. Results provide the cotton breeder with a basis for screening newly developed varieties for desirable fiber properties.

The laboratory scale spinning test is more extensive in scope and ordinarily uses about five pounds of cotton. It is used in the Department of Agriculture for evaluating varieties already in commercial production as well as varieties still in the developmental stage and breeder samples where sufficient quantities of cotton are available. Strength, uniformity and grade of yarn, number of neps, and the amount of manufacturing waste for both combed and carded yarns are ordinarily evaluated.

Pilot scale spinning tests are performed in a pilot textile plant such as the one located at the Southern Regional Research Laboratory. Such tests are broader in scope than the micro or laboratory test, use from 50 to 500 pounds of cotton, and serve a wide variety of purposes including the correlation of fiber properties with product quality, the assessment of improved processing organizations, the assessment of new and improved machinery developments, and the evaluation of chemically modified cottons. Very intensive processing evaluation programs lead to this type of spinning test. For example, relatively large quantities of experimental cotton varieties are subjected to intensive processing evaluation studies as a step in determining their commercial applicability. The pilot scale spinning test is very effectively used in conjunction with research programs involving the development of information in the field of textile technology.

The mill scale spinning test, as the name implies, usually involves the investigation of problems particularly associated with mill operations. The test might be concerned with a processing performance evaluation of a cotton variety or a machinery development. It could be extensive in nature, involving a study of a majority of the known quality criteria or it might involve only one quality factor such as yarn strength. As has already been indicated, the mill test is often specialized in nature and designed for finding the solution to a specific problem.

*Statistical Techniques.* The question of the reliability of a spinning test arises because the test results are only a sample of the results that would be obtained if a complete set of data could be taken for the operation about which information is desired. If all the readings in a complete set of data for a given criteria were the same, all the readings in a sample of the data would be the same and there would be no question as to reliability. Any reading would be exactly the same as the average of all the readings in the complete set of data and the average of any sample of readings would be the same as the average of any other sample. As a result, all sample averages would be the same as the average of the whole.

However, such a situation very seldom, if ever, exists in actual practice. Individual observations or readings vary throughout any complete set of data, and the average of readings in any sample of the complete set varies from the average of the whole. The reliability of results from any test for indicating the true situation is, therefore, dependent upon the amount of variation among the individual observations. In general, the more variable are the items making up a population, the less reliable are the results of a sample taken from the population. The more widely the figures in a sample deviate from the average of the figures in the sample, the less the confidence that can be placed in the average.

The statistical technique most commonly used to measure variability is the standard deviation. It is simply a type of average (the quadratic average) of the deviations of each individual figure in a series from the average of the figures in the series. The average for the series of figures plus or minus two or three standard deviations is commonly used to indicate upper and lower limits between which the major portion of the items in the series is included.

The mean and standard deviation describe a single set of data, but by themselves have very little meaning unless other means and standard deviations are available for comparison. For comparative purposes it is often desirable to use an additional technique known as the coefficient of variation. The standard deviation is in actual units and its size, therefore, depends upon the size of the unit as well as upon the amount of variation. The coefficient of variation expresses the standard deviation as a percentage of the mean around which it is computed and places variability for different series of data on a comparable basis. Thus, although one series may have a larger standard deviation than another, it is possible that, when each is expressed in terms of coefficients

Fig. 1. Distribution of coefficients of variation of single strand strength values of single yarns.

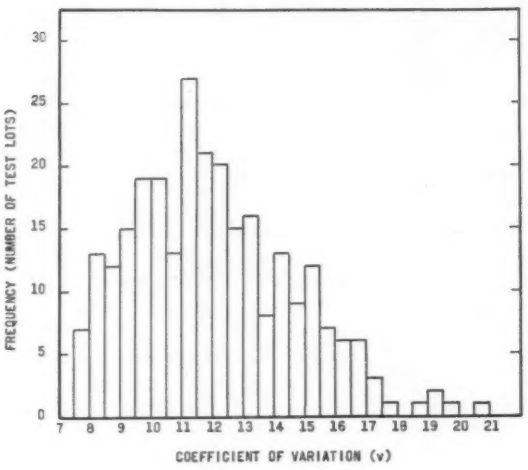
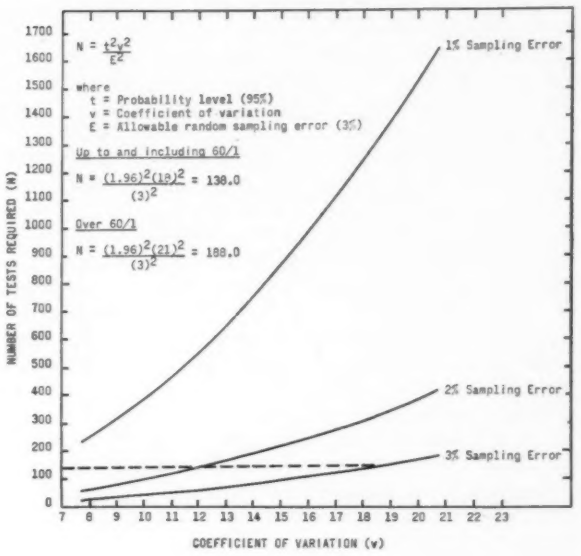



Fig. 2. Reliability of single strand strength values of single yarns.


N = t²v²/E²
where
t = Probability level (95%)
v = Coefficient of variation
E = Allowable random sampling error (3%)
Up to and including 60/1
N = (1.96)²(18)²/(3)² = 138.0
Over 60/1
N = (1.96)²(21)²/(3)² = 188.0
1% Sampling Error
2% Sampling Error
3% Sampling Error
NUMBER OF TESTS REQUIRED (N)
COEFFICIENT OF VARIATION (v)

of variation, the series having the larger standard deviation may be the less variable.

As has been indicated, the results of any spinning test are expected to vary somewhat from the results that could be obtained if a complete set of data were available for the operation about which information is desired. The extent to which the test might be expected to vary from the true results would have a great deal to do with the reliability of the test. A third technique, known as the standard error of the estimate or simply as the standard error, is used for estimating the amount by which the results of the test could have been different from the true results. It assumes that the test made could have varied from the true results by an amount that is related to the standard deviation of the items and to the number of items included. It is computed by dividing standard deviation by the square root of the number of items. The standard error gives an indication of the repeatability of test results by saying that other tests taken under identical conditions should give results that are within a range of plus or minus one standard error of the first test about two-thirds of the time, within limits set by two standard errors 95 times in 100 and within three standard errors about 99 times in 100.

Many of the more complicated techniques used in statistical analysis are extensions or refinements of methods used in computing the standard deviation and standard error. Although nothing very complicated is included, the remainder of this report will be devoted to a consideration of some of the questions that arise in the application of spinning tests, such as the number of observations required to attain a desired reliability, and to the presentation of a few examples of the application of spinning tests to various types of problems.

*The Determination of Sample Size.* The number of items included in a spinning test is closely related to its reliability. The question, therefore, often arises as to how many items should be included in a test. The answer is dependent partly upon the reliability desired, which in turn depends upon the use to be made of the data. For example, a degree of reliability may be desired which is great enough to detect a difference of a certain amount, providing it exists. In addition, other aspects to the question of sample size must usually be considered. Limitations in the amount of data that can be obtained at a reasonable cost are an important consideration in almost any study that is made.

For determining the number of items to be included the formula

$$n=\frac{t^2v^2}{E^2}$$

recommended in the ASTM Manual (1)* for calculation of number of tests is usually used at the Southern Regional Research Laboratory. The value for "t" is the probability factor from Students' "t" Distribution, found in most text books on statistics. Its use in the formula accomplishes somewhat more precisely the same purpose as is done by doubling the standard error in setting confidence limits around a mean. The "v" represents coefficient of variation, and "E" the per cent sampling error allowable.

*Sample Size for Single Yarn, Single Strand Breaking Strength.* The following is an example of the method used and factors considered in determining the number of breaks per test lot to be used in testing single strand breaking strength.

A certain amount of judgment in addition to considerable analysis was required in deciding upon the values to be used for "t", "v", and "E." A 95 per cent probability level was selected because it was felt that values that fell within speci-

*Numbers in parentheses refer to literature references at the end of this article.

fied reliability limits 95 times in 100 would be satisfactory for our purposes. The value obtained from Students' "t" Distribution to represent this level is 1.96.

Since the number of breaks decided upon was to be used in routine testing, it was not desirable to change frequently the figure used. Therefore, the number of breaks desired was one that would cover most variation that was likely to occur regardless of yarn number or twist multiplier.

*Figure 1* is a frequency distribution of coefficients of variation for single strand breaking strength of single yarns from some 275 lots of cotton having various yarn numbers and twist multipliers spun in connection with various previous spinning tests. It will be noted that coefficients of variation ranged from about 7.5 to as high as 21 per cent. Practically all of the coefficients of variation for yarns up to and including 60/1 were below 18 per cent. It was, therefore, decided that the number of breaks for all yarns numbered up to and including 60/1 should be based on a CV of 18 per cent and that a separate number of breaks using a coefficient of variation of 21 should be set for yarn numbers over 60/1.

The value to be used for "E" is dependent upon the degree of precision required of the results of the test. Breaking strength data are usually used to relate spinning twist to yarn breaking strength. Previous experience in constructing curves of this type indicated that a three per cent sampling error could be tolerated since a variation of ± 3 per cent in any mean strength value could have very little effect on the general characteristics of the twist curve. Another practical consideration in deciding upon a three per cent rather than a two or a one per cent sampling error is illustrated by *Figure 2*.

The numbers of breaks required for coefficients of variation ranging from 7.5 to 21 to attain a one, two, or three per cent sampling error were computed and plotted in the figure shown. It can readily be seen that a one or two per cent sampling error would be impractical for routine testing because of the extremely high number of breaks required for higher coefficients of variation.

In summary, the values used for determining the number of breaks for testing single strand breaking strength were

$$\frac{(1.96)^2(18)^2}{(3)^2}$$

for yarn numbers up to and including 60/1. Results indicated that 138 breaks were required for the precision desired. For yarn numbers over 60/1 a coefficient of variation of 21 instead of 18 was used, indicating 188 breaks were required. Since the instrument used in testing single strand strength records by increments of 20 breaks, the number to be used for each test was rounded to 140 for yarns up to and including 60/1 and 200 for the higher yarn numbers.

Similar determinations were made of the number of breaks required in testing single strand strength of two-ply yarns and skein strength of both single and two-ply yarns. As in the example just given, the determinations were based on judgment, plus a consideration of the amount of variability to be expected and of the amount of sampling error that would be tolerated.

*Evaluation of the Effect of a Mechanical Change (Draft) on Strength of Cotton.* A problem that frequently arises in textile processing is that of the effect of some mechanical change on quality. An illustration of the use of a spinning test to obtain an answer to this type of problem is furnished by an experiment conducted to determine the effect of a draft change on the strength of cotton yarn. Specifically, a spinning test was run to decide if the experimental draft conditions in question brought about an improvement in strength of yarn over that produced by existing conditions which were used as a control.

A total of 40 different comparisons was made of results obtained using experimental drafts with results from the control. Skein strength values used in each comparison were based on 25 breaks and single strand strength values on 200. *Table I* has been set up in such a manner as to show that results obtained when the amount of

*(Continued on page 121)*

Table I. Results From Two Methods of Comparing Breaking Strength of Yarns Spun From Roving Made With Conventional Versus Experimental Drafting Systems

| | Skein | Single Strand |
|---|---|---|
| | (number of comparisons) | |
| Mean breaking strength higher for: | | |
| "Experimental" draft | 28 | 23 |
| "Control" draft | 12 | 17 |
| Total | 40 | 40 |
| Mean breaking strength significantly higher for: | | |
| "Experimental" draft | 9 | 14 |
| "Control" draft | 2 | 6 |
| No significant difference | 29 | 20 |
| Total | 40 | 40 |

Table II. Variation in Single Strand Count Strength Product[1/] Among and Within 10 Cones of 20/1 Yarn

| Source of Variation | Degrees of Freedom | Sum of Squares | Mean Square | F |
|---|---|---|---|---|
| Among Cones | 9 | 473,551.11 | 52,616.79 | 51.11** |
| Within Cones (error) | 991 | 1,020,157.25 | 1,029.42 | |

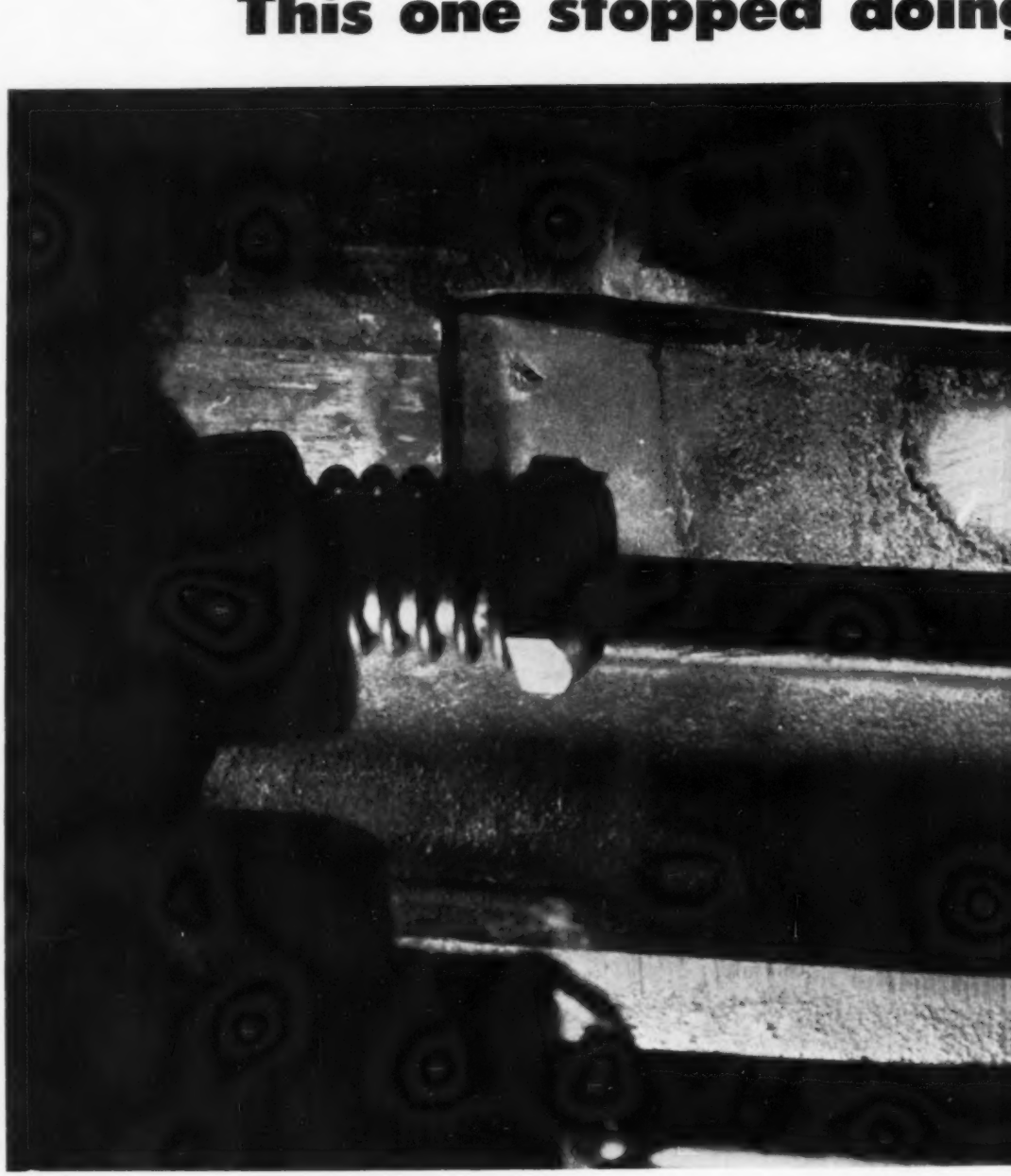
1/ Breaking strength multiplied by yarn number. Used in order to eliminate, as nearly as possible, the effect of yarn number on breaking strength.

** Highly Significant

Tear along this line to post in weave room

# Inspect binder

## This one stopped doing



Textile Industries

17

Text

# ers more often!

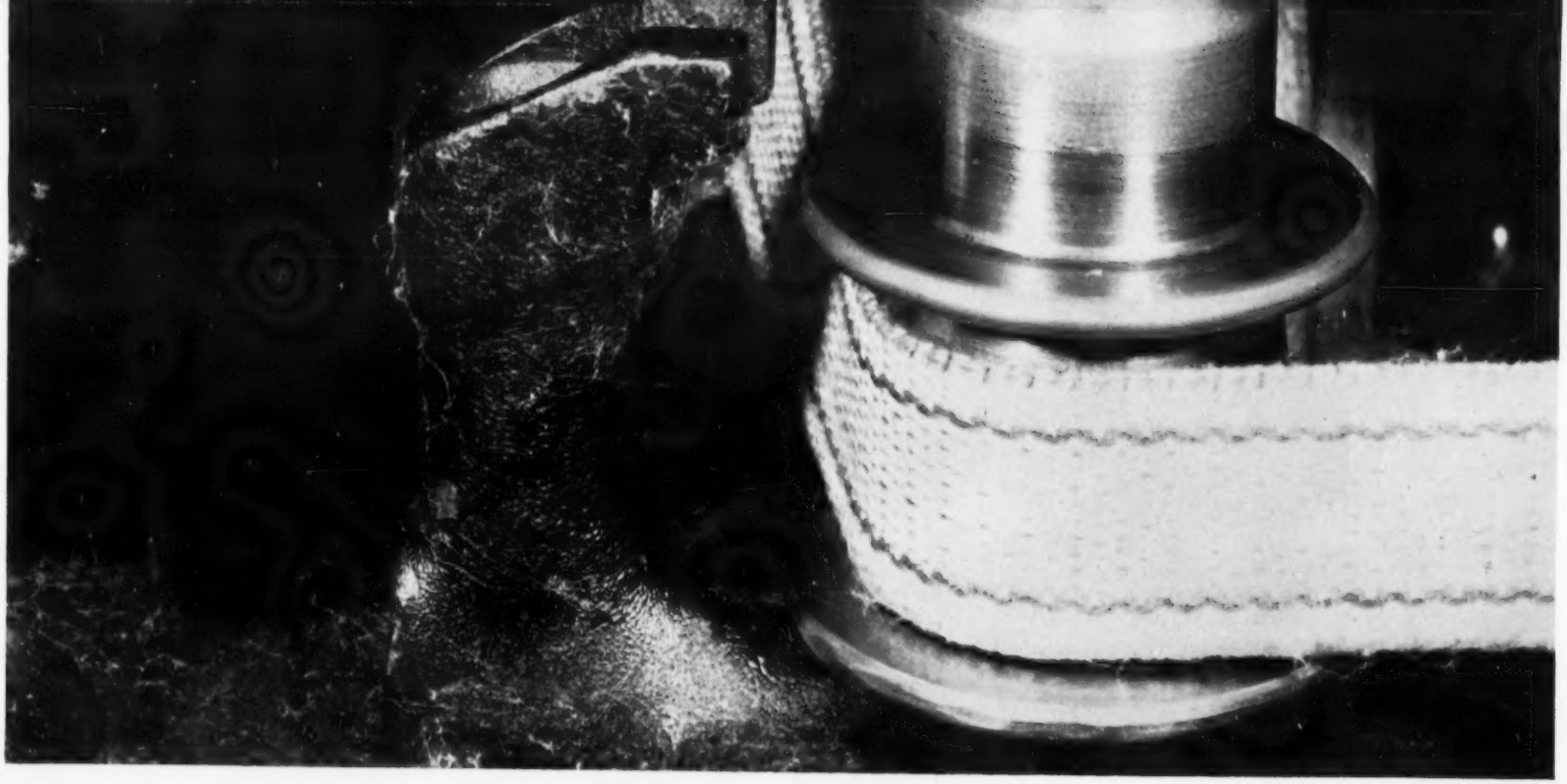
## ng a good job long ago

**xtile Industries** POSTER SERVICE

*This is one of a series of manufacturing hints and employee reminders in poster form, designed for placing on mill bulletin boards. Reprints are available. Write to The Editors, "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga.*

# REPLACE THE GUARD

## and speed doffing, reduce wear



Textile Industries

18

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Tear along this line to post in spinning room

Wooden race plates in weaving can be surfaced for smooth, snagfree operation by covering them with strips of vinyl film tape.

*How the mills are using pressure-sensitive tapes to*

# SAVE TIME AND MONEY

by M. D. Schantzen

*Minnesota Mining and Mfg. Co.*

Exclusive

THE use of pressure-sensitive tapes as a production tool in the textile industry was more uncommon than common ten years ago. Few production superintendents, or mill owners, were aware that tapes could find so many uses as now exist in textile plants.

Yet many textile mills and cloth manufacturers would find it necessary to change production procedures considerably if pressure-sensitive tape suddenly disappeared.

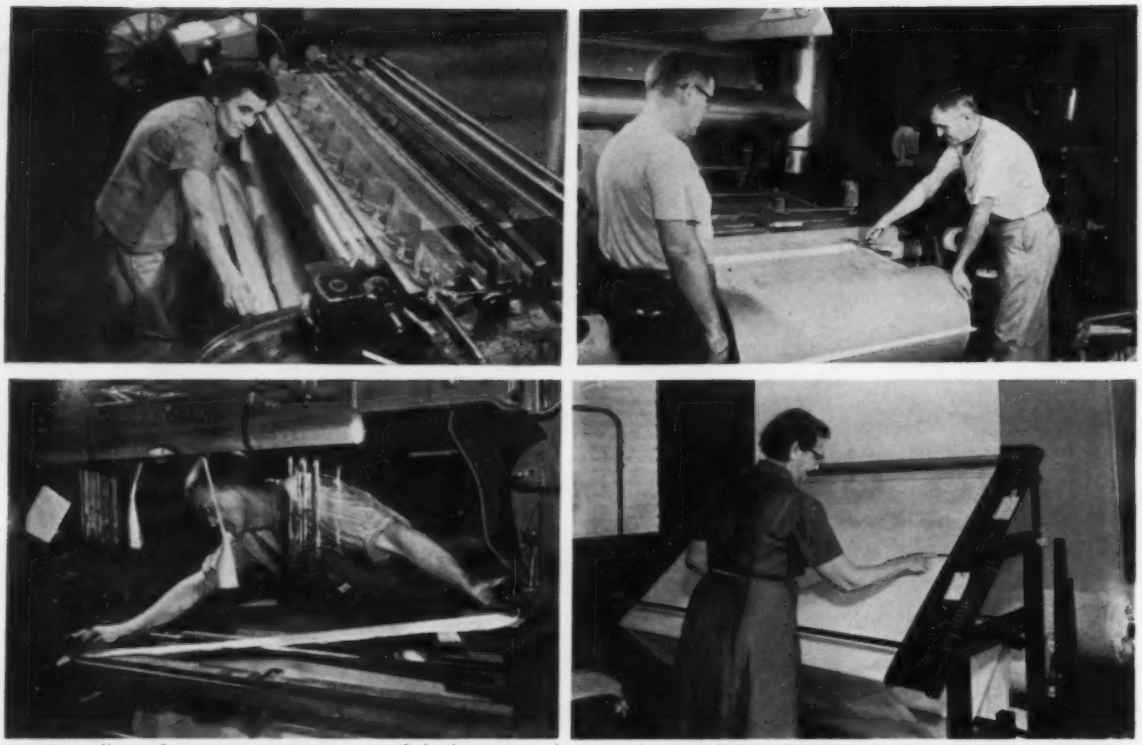
Why? The answer is simple in some ways. The use of tapes has produced appreciable savings in production costs and production time. Like any tool, pressure-sensitive tapes have had to prove their own value. In many cases they are producing savings unobtainable with any other method.

In other ways the answer is more complex. Indirectly, tapes have meant increased employee satisfaction. They have provided safer plants and made the mill workers' jobs easier.

Today pressure-sensitive tapes are used as production tools in yarn, cloth, apparel, and carpet and rug manufacturing plants as well as in cloth finishing operations. They also are used for packaging and product promotion, in-plant maintenance, and for many office uses.

Perhaps one reason tapes have become an integral part of the textile industry is their unique ability to grow in usefulness from one job to another. Frequently tapes used in one operation show up doing a different task. People like to solve problems, and tapes do just that.

Double-coated tape, for example,



Familiar mill uses for pressure-sensitive tapes include those pictured here. TOP PHOTOS: Taping section and loom beams to prevent crossed ends. BOTTOM PHOTOS: Securing felt to loom race plate and marking fabric defects.

is used in many textile mills during the weaving operation to hold fur or felt to the inside of the shuttle. Fur or felt prevents tangling of yarn as it unwinds from a bobbin, and also clears it of all foreign matter. This protection, applied quickly and easily with tape, insures against yarn breakage and a possible smash.

From holding fur in shuttles, double-coated tape next appears on race plates—especially for weaving fragile yarns—to secure a resilient pad. This pad reduces the pressure of the shuttle as it rides across the race plate on the lower warp yarns in the shed.

In another application, double-coated tape is found in the textile finishing process to start the first wind of woven goods on paper roll-up shells.

Two or three strips of the two-faced tape are first wound around the shell. The operator then starts the wind rapidly by pressing the cloth against the tape. Shells equipped with double-coated tape are used as many as eight times before the tape is replaced.

In like manner, double-coated tape is applied to wooden shells on automatic winders. It is especially effective here since "flying" doffs are made, and a positive pick-up of cloth on the new shell is essential.

This application has meant a savings of two to three yards of cloth on each doff. Previously the cloth had been attached by first wetting several yards to make it adhere to the shell, and the yardage was later discarded.

Where a textile mill doffs an average of 100 cloth rolls every eight-hour shift, tape has been found to be the fastest, most effective way to secure the last wind of cloth. A weaver, charged with a great many responsibilities in addition to this one duty, will be less rushed from the time saved and be more attentive to his over-all job.

Textile tape, a strong flatback paper tape with an extremely high "holding power" adhesive, is also stain resistant on most textiles or fabrics.

Holding power is especially valuable in preparing yarn for weaving. Many mills have discovered that an application of tape to keep warp yarn parallel in the transfer from warper and the slasher to the loom averts costly production losses in both time and quality of goods.

Many textile mills sandwich warp ends in parallel fashion between two lengths of textile tape for the transfer of the section beam from the warper to the slasher. The tape gives positive retention, does not gum up lower layers of the warp and allows the doffer personnel to keep their hands clean and dry.

Once sized, warp yarn is more difficult to hold in alignment—particularly in high sley warps—since the textile tape must anchor securely to more warp ends per inch of width.

By following the sandwich method again and using the drag rolls on the slasher to give extra pressure to the sandwich lengths, tape can maintain even high sley warps in alignment.

The procedure is fairly simple. One length of textile tape is applied across the sized warp ends at

the back drag roll. The beam is then revolved until the tape appears under the front delivery roll, adhesive side up. The tension roll is dropped and a second length of tape is applied to form the sandwich. The warp beam is then revolved and the sandwiched section passes through the front drag roll, anchoring tape to each end of the warp yarn.

Two tape sandwiches are usually made in preparation for doffing the warp beam when loaded. The first sandwich is used as a security measure for leasing, and the second is cut down the middle of the tape.

This leaves the yarn sandwiched on the loaded warp beam, and assures a smooth, even start on the new beam with the other half of the sandwich. Three strips of textile tape are used to hold the loaded warp beam and the start of the new beam.

The use of textile tape in this operation more than pays for its cost. One New England mill reported the use of textile tape eliminated the loss of three to six yards of cotton yarn per warp beam at the tying-in operation. Another plant eliminated loss of approximately 3800 yards of warp yarn per month in the same manner.

Another fairly common problem within the textile mill—that of identifying parts, supplies, and defects in woven cloth—can be solved with colored and printed tapes.

Sliver cans may be identified according to contents by a strip of colored tape (available in a 14 color range) banded around the can.

Yarn manufacturers also use a printed pressure-sensitive tape to apply their names to the inside of cones to insure each cone will be returned to the individual yarn mill.

Tabs of colored cellophane tape also are used to identify yarn packages according to size. Synthetic yarn manufacturers, especially those in white yarn, find color coding valuable since it is not possible to color tint the synthetic fiber.

At the loom, the weaver can apply a strip of textile tape to crossed warp ends as they come off the beam. When the tape reaches the whiproll it can be cut, and the tape holds the cut ends while a repair is made.

Woven cloth as it is inspected is marked with four inch tabs of narrow textile tape at the selvage to identify defects which cannot be readily removed.

An especially strong filament tape, with tensile strengths of up to 500 pounds per inch of width, is used to reinforce cartons in many textile mills.

Filament tape is also used for banding bales of felt and rolls of grey goods since it is slightly elastic as well as strong. Banded with filament tape, bales of felt have arrived at their destination in factory condition free of objectional impressions on the material.

Workmen in the shipping and packaging department of one mill found that filament tape was easier to use and, as a result, they complained less during their work.

In-plant safety can be encouraged through the use of tape. Dangerous areas marked off with lines of colored plastic tape warn the worker, and traffic lanes in warehouses let him know that the area can be hazardous if he ignores normal precaution against in-plant traffic.

Moving assemblies on production machinery can be striped with black and yellow plastic tape to alert workers to the dangers of moving parts.

Plastic tape, available in seven colors, has the advantages of wear resistance—giving long use—easy application and immediate use after application. It can be quickly removed when changes in floor plans are made.

These applications are primarily those which have gained acceptance within the textile mills. Like any material, however, tapes must keep pace with present needs and, by an alert awareness of new developments, work to anticipate future demands of the industry.

For example, splicing of grey goods in textile finishing presents a definite use for tape. To do the job there is a heat-activated bonding film tape which joins the fabrics as securely as if they were woven together.

Future demands of the textile industry don't stop there, however. The splicing job now involves the efforts of two men and takes valuable time because the heat must be applied by hand.

Developmental work is in progress towards a textile splicer which will do the job mechanically as an integrated phase in a production line.

The result is that typically expected of pressure-sensitive tapes: a saving in production time and a measurable saving in production costs.

## Research conference program announced

■ THE 1958 Gordon Research Conference for textile industry personnel will be held during the week of July 7 at Colby Junior College, New London, N. H., according to an announcement by W. George Parks, director.

Dr. Emery I. Valko of Lowell Technological Institute and Dr. Leonard Smith of the National Cotton Council will be chairman and vice-chairman respectively.

Subjects to be discussed on each of the five days and names of those who will lead the forums are as follows:

July 7—Deformation mechanism of polymers, by H. Mark; Tension changes in textile structures during wetting and drying, by Norman J. Abbott and Freddy Khoury.

July 8—The structure and properties of viscose rayons, by W. A. Sisson; Elastic textile fibers based on condensation polymers, by R. E. Seaman and J. C. Shivers.

July 9—Relationships between mechanical behavior and chemical modification of cotton, by C. M. Conrad; Some new results in wool chemistry, by Helmut Zahn.

July 10—Movement of fluids in fibrous beds: capillary sorption, permeation, by A. A. Burgeni and E. V. Painter. The transport of liquids in textile assemblies, by F. W. Minor, L. C. Buckles, E. Wulkow, and A. M. Schwartz.

July 11—Mechanism of fiber and yarn lubrication, by C. Schlatter.

Individuals interested in attending the conference are requested to send their applications to Mr. Parks at the University of Rhode Island, Kingston, R. I.

# *Trouble-shooting on cotton combers*

*Veteran superintendent shares his experiences in maintaining quality*

by Marcus Gross
Exclusive

*Part 1*

COMBING is a complicated and expensive process, and only top-level supervision and maintenance will keep quality and production high, and costs down.

Getting the best combing necessitates the best in preparation, for no comber can be expected to produce a quality product unless those operations are also producing quality products.

Some combing mills produce a lighter sliver for preparatory combing in contrast to a heavier card sliver for carded work only. In one northern mill that processes many thousands of pounds of combed stock weekly, the card sliver destined for the combs weighs 48 grains, compared to the regular 60 grain sliver for carded work.

The slower feed-in at the cards producing the 48-grain sliver allows the licker-in to take out more dirt, motes, and fly than is done with the faster feed-in on the regular carded stock. In both instances a 14-oz. picker lap is standard.

Actually parallelization begins in the preparation of the lap, which must be smooth and even with all traces of sliver identification removed. Nipper action on the fringe edge of the lap cannot be faultless if the lap is uneven — heavy and light cross sections. Since the nippers cannot exert the same force on the light cross sections as they do on the heavy cross sections of a lap, longer fibers are removed from the lighter cross sections during the combing cycle.

What is believed sometimes to be wrong comber settings — when the noil is examined and found to contain an excess of long fibers — can sometimes be traced to poor and uneven laps.

Noil should also be examined daily, for once good staple has passed into the noil, the longer fibers cannot be reclaimed, adding considerably to the over-all costs. Even laps help reduce costs of needle replacements on the half-lap.

The age-old problem of whether we should double less or double more continually crops up in discussions — especially in relation to combed work. One school of thought holds that too many doublings weaken the fibers, while another believes the opposite.

However, in lap preparation, sufficient doublings are necessary to lose sliver identification and to insure an even lap, and only constant supervision and inspection will prevent otherwise.

Though faultless nipper action depends on evenness of lap, we cannot overlook the nipper itself, or nippers. The purpose of the nippers is to grip the fibers we do not want to go into waste (the long fibers); and to hold the lap as close to the cylinder half-lap as is possible and practical during the combing cycle.

The jaws of the nippers have to be made accurately and adjusted closely. The comber fixer must know that with any variation or irregularities in adjustments, the nippers cannot grip the lap perfectly across the width.

Great care is absolutely necessary in setting every set of nippers before they are installed in the comb, and the nipper plate should be as parallel as possible to the nipper knife. It would probably require a text book to explain the importance of nipper action to the combing cycle and although nipper motions vary as to manufacturer, fundamentally their principles remain the same.

*Top Combing Action.* The proper position and angle of the top comb means the difference between good and bad "tail" combing and cleaning. Adjustment screws aid the fixer in determining and setting the top comb needles to the segment, clearing it usually by a few thousandths of an inch. The top combing action combs that portion of the fibers drawn from the fringe by the detaching rolls. Emphasis is placed upon the top comber as a cleaner of importance, not only preventing dirt and foreign particles from passing on into the web, but preventing a large percentage of shorter fibers from passing along — short fibers that cling by contact to longer fibers that are being detached.

Most of the dirt, foreign particles, and short fibers, however, are not held by the needles, but slip out and are removed by the action of the half-lap. That which is held by the top comb must be periodically removed by the comber tender, and such removal should be scheduled regularly to prevent undue pressure of the waste upon the needles and also prevent undue needle breakage.

Unfortunately, the comber cannot clean out all "foreign" matter, especially neps. In this mill, where staples have been combed from 1 1/16" up to and including 1½", neps and their causes formerly were accepted "as is." Nothing much was done about them until a quality control laboratory was established.

At that time the mill was processing mainly 1 1/16" and 1⅛" staples in their combed processes, and neps, especially in the 1⅛" combed stock, were giving the yarn a poor quality appearance.

The laboratory undertook a nep count, starting with the comber laps, then card sliver, and on through the pickers and opening line. Primarily checking the combed staples, the laboratory found that in every nep count the count in the 1⅛" stock was considerably higher than in the 1 1/16" stock, and especially so in the comber laps.

The laboratory traced this high incidence to an opener in the opening line. When tests were made on the 1⅛" stock with this opener by-passed, a considerable drop in the nep count occurred.

This of course was an individual mill problem, but what occurred here could occur elsewhere. For this particular combed staple the opener was then by-passed. Appearance improved and the strength of the yarns held steady — giving proof of the comber's ability to do a good cleaning job in addition to its primary duties of combing and straightening fibers.

Whenever two or more staples are being combed in the same area at the same time, the stock should be clearly identified with crayon or tint markings and separated as far as possible. It is easy to visualize what would occur if the stock were mixed.

*(To be continued in an early issue)*

# Making worsted system carpet yarns from nylon tow

■ OPERATING executives of worsted system mills in which nylon carpet yarns are being produced from 15 denier nylon tow will find in a recently published Du Pont bulletin* several suggestions for increasing processing efficiency. Among them are the following:

1. Control atmospheric conditions in mill—relative humidity, 50-55%; temperature, 75-80 F. When this is not possible and static poses a problem, static protection can be obtained by applying an anti-static finish to the tow or sliver.

2. Employ processing procedures that do not require use of tints.

3. In mills which utilize the Pacific Converter, normally four or five tow bundles of 330,000 denier each are fed to the machine and a 200-250 gr/yd sliver obtained.

a. To guide the tow bundles into the machine and remove folds and twists, use a tow guide consisting of three curved bars mounted in definite positions on a holder. Guides can be arranged one behind the other or mounted side by side in groups of two's in order to better utilize floor space. Mount guides as high as practical above the tow cartons.

b. Cut lengths of 6 or 6½ inches, either straight or variable cut, are usually produced. Longer lengths are desirable because they allow spinning of yarns with reduced twist.

c. Avoid cutting "long fibers" by (1) maintaining cutter and anvil rolls in good condition and (2) positioning tow ends side by side as they enter the converter, rather than on top of one another in the conventional sandwich style.

4. No difficulties should be encountered in processing on gill boxes or Pin Drafters. Utilize four or more stages of doubling. Do not permit operators to "piece-up" in the final doubling operation. Drafts of 6-10 are common using the following pinnings:

| Operation | Pins/Inch |
|---|---|
| Intersecting Gill | 12 |
| Gill Reducer | 16 |
| First Pin Drafter | 22 |
| Second Pin Drafter | 22-29 |
| Third Pin Drafter | 29-34 |
| Fourth Pin Drafter | 29-34 |

5. Roving frames may be used in conventional manner or may be used as spinning frames to produce the desired yarn count and twist.

a. High production rates are possible by using substantially higher than normal spindle speeds.

b. Spinning on roving frame also has advantage of close twist control because spindles are gear driven.

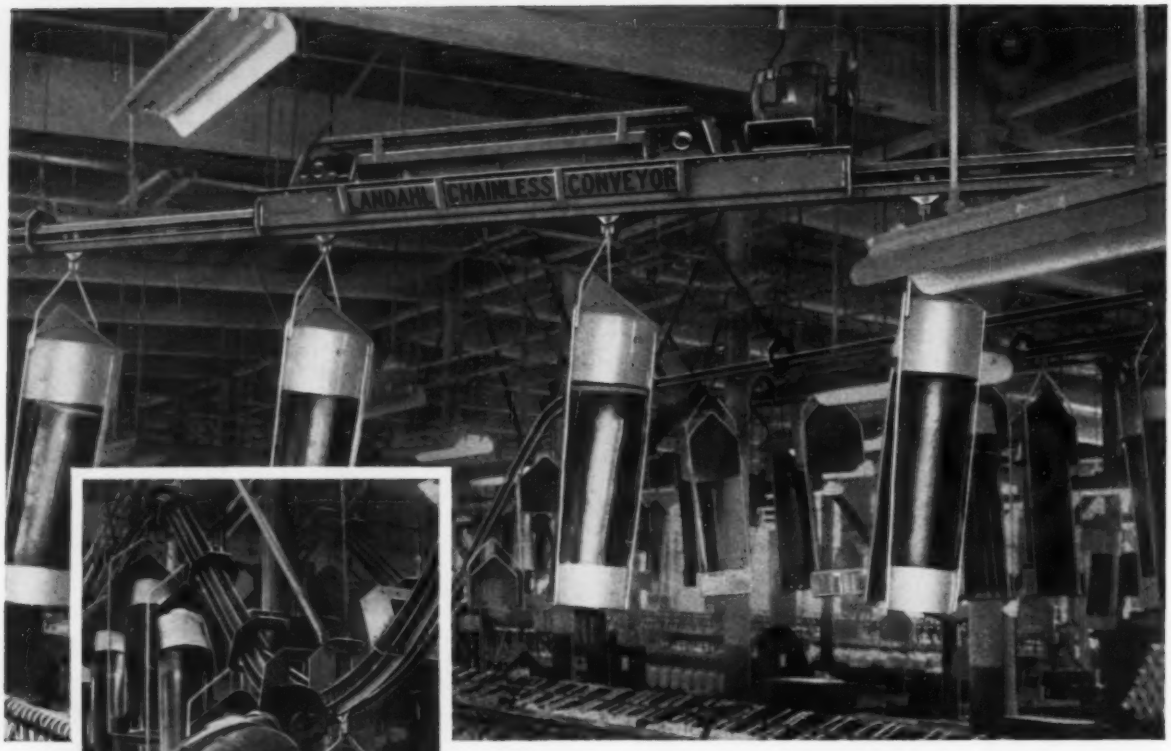
6. Good mechanical condition of the spinning frame is of prime importance for maximum quality and efficiency.

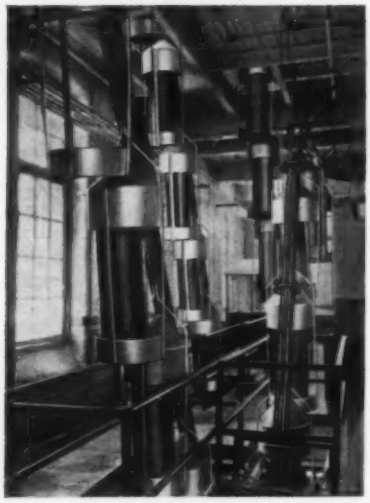
a. Uniformity of twist from spindle to spindle is especially important. Frequent checking of spindle speeds with a stroboscope is beneficial.

b. Spin a finer count yarn than the count that is desired in the finished carpet, because nylon yarn contracts upon standing and during heat-setting.

7. Conventional twisters may be used, but close control of twist is necessary, particularly for friezé yarns. Check spindle speeds with stroboscope daily.

*"Spinning Nylon Carpet Yarns on the American Worsted System," Bulletin N-102, December, 1957, Technical Service Section, Textile Fibers Dept., E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.





# LANDAHL Modernizes Cotton Mill with Overhead Chainless Conveyors

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variation around an average is not taken into consideration may be very much different from results when variability is considered.

Results shown in the upper part of the table are simply a tabulation of the number of times in which skein and single strand breaking strength was higher for yarns produced with experimental drafts and the number of times in which strength was higher for the control yarn. In these comparisons, any case in which strength was higher by any amount was considered an improvement. Results favor "experimental" drafts, since average skein breaking strength was higher under experimental than control conditions in 28 out of 40 comparisons and single strand strength was greater for experimental than control in 23 out of 40.

The data were further analyzed so as to take into consideration the amount of variation in the data by computing the significance of difference between the mean strengths of control and experimental lots. If the difference between two means is greater than twice the standard error of the difference between two means, it is fairly certain that the difference was not due merely to random variation of the means. In general, the standard error of the difference between two means is the square root of the squared standard error of one mean plus the squared standard error of the other.

The results of the analysis after taking variability into consideration are shown in the lower part of *Table I.* Of the 40 differences in mean skein strength, 29 proved to be not significant. This was also true of 20 of the 40 differences in single strand strength. Thus, between one-half and two-thirds of the comparisons resulted in differences between means for control and experimental lots that could have been caused merely by random variation; and, in these comparisons, there would not have been a sound basis for concluding that the experimental conditions used caused an increase in yarn strength.

It should be noted, however, that if the 40 tests were a random sample of the total possible tests, similar results would be expected from other samples from the same population. Therefore, it was finally decided that at least some improvement was indicated, since, as was previously pointed out, the major portion of the tests showed some increase in strength, although many of the differences were not significant when considered on an individual test basis.

*The Spinning Test as an Aid in Planning an Experiment.* The next example is one in which the analysis of a spinning test was used as a basis for planning an experiment. A lot of 20/1 yarn consisting of approximately 2-1/4 pounds on each of ten cones was spun for the purpose of being subjected to chemical treatment. Treatments were to consist of a control and a number of experimental treatments after which their effect on breaking strength, as well as on certain other criteria, was to be observed. If test lots to be treated were to be taken indiscriminately from any of the ten cones and from any part of one cone, yarn throughout the whole group of ten should be sufficiently homogeneous with respect to breaking strength to be from the same population. Otherwise, it would not be known whether differences in results were due to differences in treatments or to differences in strength among cones and among locations on cones.

Breaking strength of the yarn on each of the ten cones was tested before treatments were applied. The strength of yarn on cone No. 1 was tested from three locations—the inside, middle, and outside of the cone. Over-all variation in the individual strength values for the ten cones was divided into variation due to differences in levels of strength values among the ten different cones, and variation due to differences in values measured within each cone. This was accomplished by use of analysis of

Table III. Variation in Single Strand Count Strength Product[1] Among Three Locations and Among Groups of 20 Within Each Location for 20/1 Yarn on Cone Number 1

| Source of Variation | Degrees of Freedom | Sum of Squares | Mean Square | F |
|---|---|---|---|---|
| Among locations on Cone | 2 | 12,805,714.06 | 6,402,857.03 | 28.27** |
| Among combined groups of 20 | 4 | 801,130.52 | 200,282.63 | .88 |
| Interaction | 8 | 1,010,838.20 | 201,354.78 | .89 |
| Error | 285 | 64,555,597.05 | 226,510.87 | |
| Total | 299 | 79,773,297.83 | | |

1/ Breaking strength multiplied by yarn number. Used in order to eliminate, as nearly as possible, the effect of yarn number on breaking strength.

** Highly Significant

Table IV. Evaluation of a Machinery Development

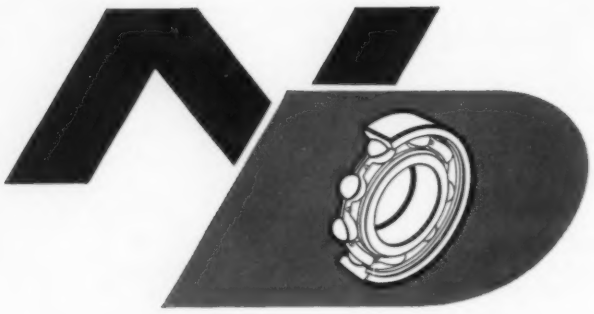
| STATISTIC | CONTROL | EXPERIMENTAL 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| CSP ($\bar{X}$) | 2226 | 2128 | 2186 | 2155 | 2173 |
| Difference Between Means | -- | 98 * | 40 | 71 | 53 |
| 2 X S.E. of the Difference | -- | 81 | 71 | 72 | 71 |
| **RETEST OF YARNS** | | | | | |
| CSP ($\bar{X}$) | 2149 | 2112 | 2125 | 2084 | 2110 |
| Difference Between Means | -- | 37 | 24 | 65 | 39 |
| 2 X S.E. of the Difference | -- | 95 | 85 | 76 | 82 |
| **RE-RUN OF ROVING (ADDITIONAL SPINNING)** | | | | | |
| CSP ($\bar{X}$) | 2106 | 2116 | 2155 | 2095 | 2077 |
| Difference Between Means | -- | 10 | 49 | 11 | 30 |
| 2 X S.E. of the Difference | -- | 83 | 78 | 78 | 84 |

* A real difference between Control and Experimental Lot 1 is indicated because the difference between means is larger than twice the standard error of their difference.

NEW DEPARTURE

NEW DEPARTURE

NEW DEPARTURE



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# NEW DEPARTURE

DIVISION OF GENERAL MOTORS—BRISTOL, CONN.

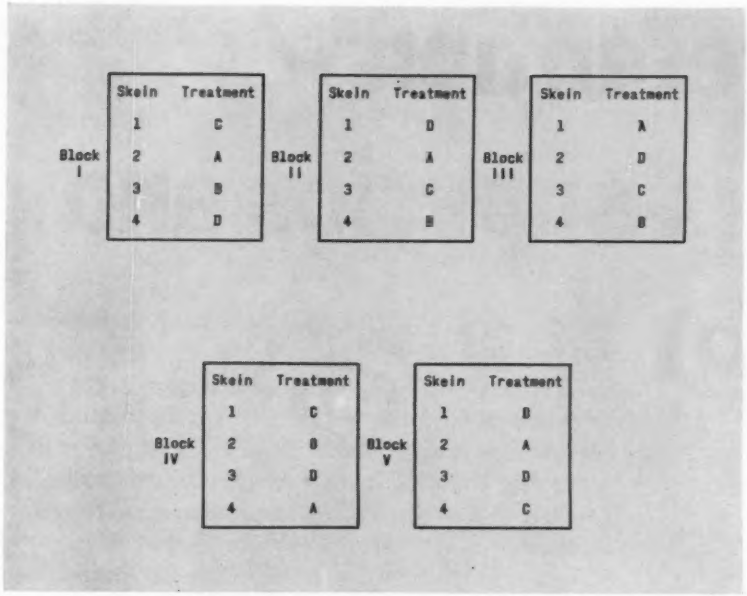



Fig. 3. Randomized block design for an experiment in which the effect of four chemical treatments on the breaking strength of yarn is to be measured in five replications.

variance.

In its simplest form, variation within cones or sub-groups is taken as synonymous with random variation and is often referred to as experimental error. The size of this figure on a per-unit basis compared with the size of per-unit variation among sub-groups or cones indicates whether differences among cones is merely due to random variation or to causes other than random variation and are, therefore, significant.

By this method of analysis, variations among cones and among locations on cone No. 1 were found to be highly significant. (See *Tables II* and *III.*)

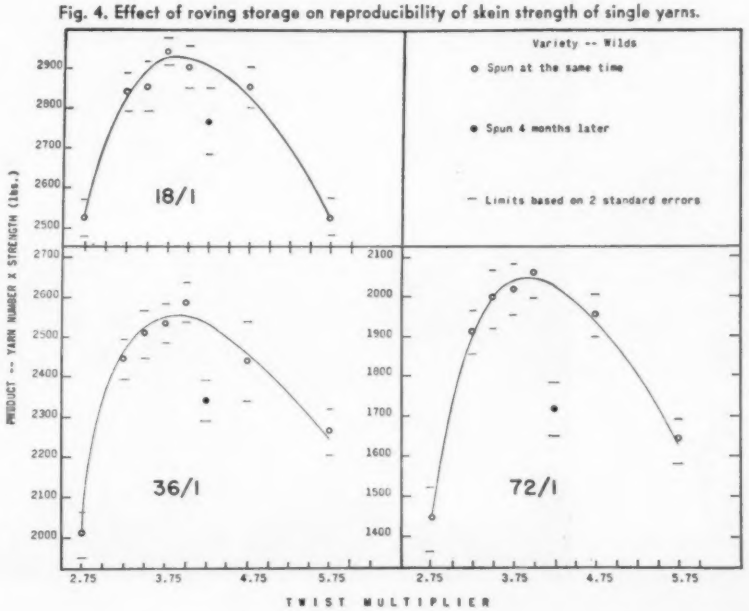
In view of the foregoing results, it was decided that some method should be adopted for minimizing or eliminating such differences for lots that were to be subjected to a given set of control and experimental treatments. It was decided that all yarn to which a given set of treatments was to be applied, including replications, should be taken from the same cone and, as nearly as possible, from the same location on the cone. Although the experiment has not yet been performed, it was suggested that it be set up in a randomized block design in the following manner:

If four treatments are to be made, four skeins of yarn should be taken in consecutive order from the same cone to which the four treatments will be applied. This procedure should be repeated for each replication of the experiment to be made, taking yarn for each replication from the same cone. Five replications were recommended. Each replication is represented by a block in the design shown in *Figure 3.* Each block consists of the four skeins of yarn that were taken in consecutive order for that replication. The four treatments making up each block were randomized as to location within the block in order to minimize the effect of location among successive skeins.

Separation of variation due to treatments, location within the cone, and error would again be done by analysis of variance. Variation due to treatments would be further subdivided to compare the significance of the difference between results for experimental and control applications.

*Effect of Roving Storage on Yarn Strength.* The following example illustrates how the placing of limits of reliability around so-called twist-strength curves has led to the detection of important differences in strength caused by the storing of roving over a period of time. A series of yarns was spun using a range of twist multipliers, the yarns were tested for strength and these results plotted to show twist - strength relationships. Inspection of the curve indicated the desirability of obtaining additional strength values for yarns spun with a 4.25 twist multiplier, because of the rapidly changing character of the curves in this twist-strength

Fig. 4. Effect of roving storage on reproducibility of skein strength of single yarns.

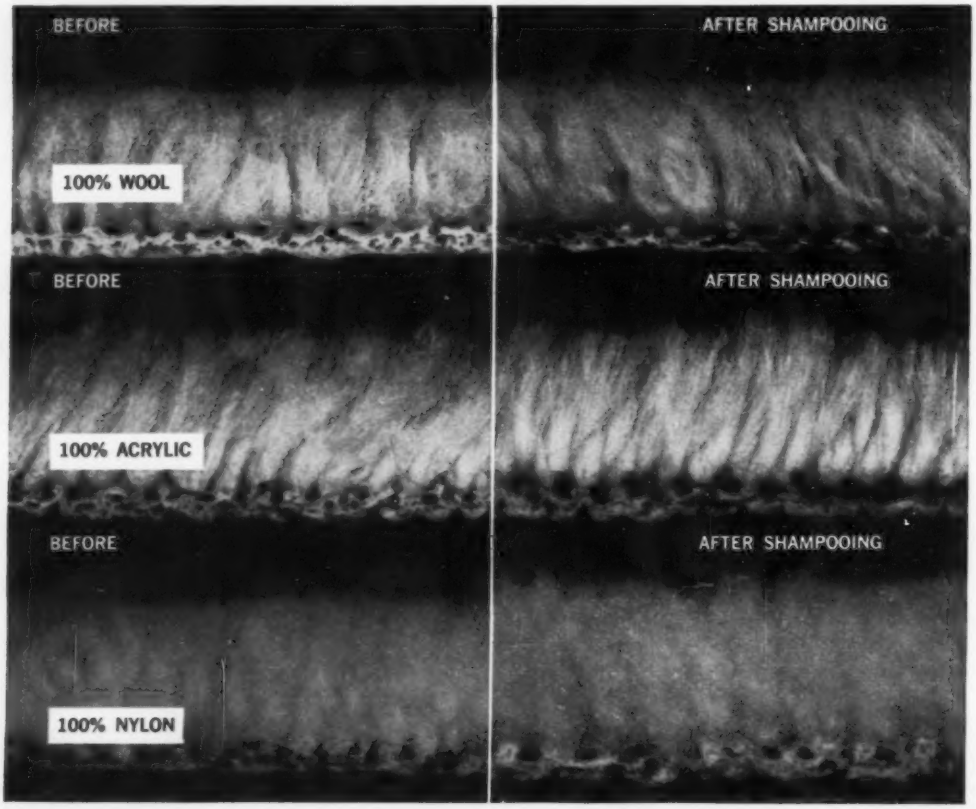


# texture retention of Nylon is superior and permanent

Three separate and distinct tests are shown here. Within each test, photos show identical (except for fiber content) strips of carpeting before and after shampooing. You will note that the texture of nylon is virtually unchanged even though it has been subjected to this treatment *10* times with rotary brush action. 100% wool, rayon and acrylic have lost considerable texture. The addition of respectable percentages of nylon produces fabrics which stand up extraordinarily well, but not as well as 100% nylon.

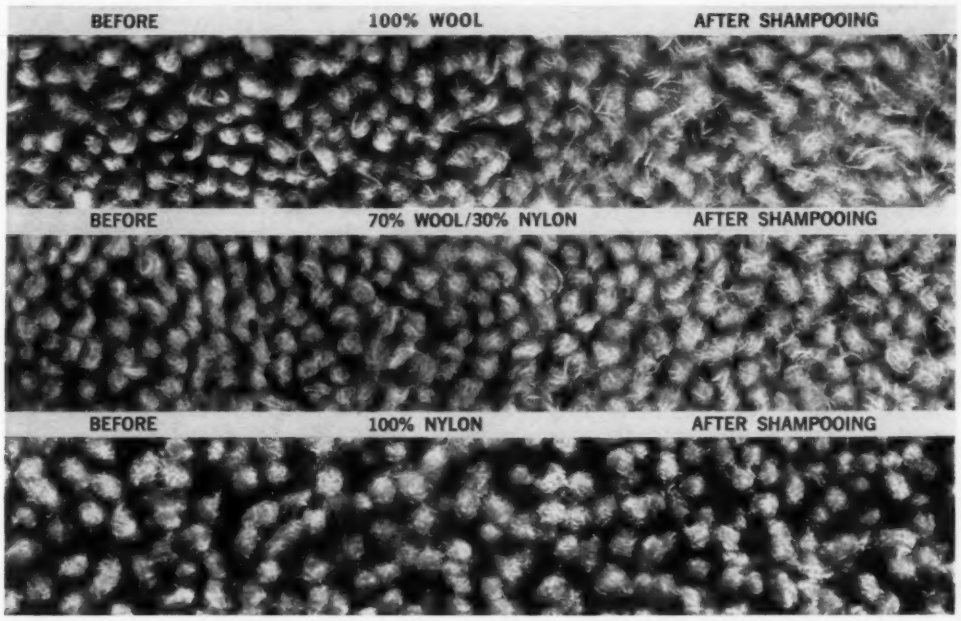
## TEST NO. 1...NYLON COMPARED WITH WOOL AND ACRYLIC

*CUT PILE, NOT TWIST-SET*



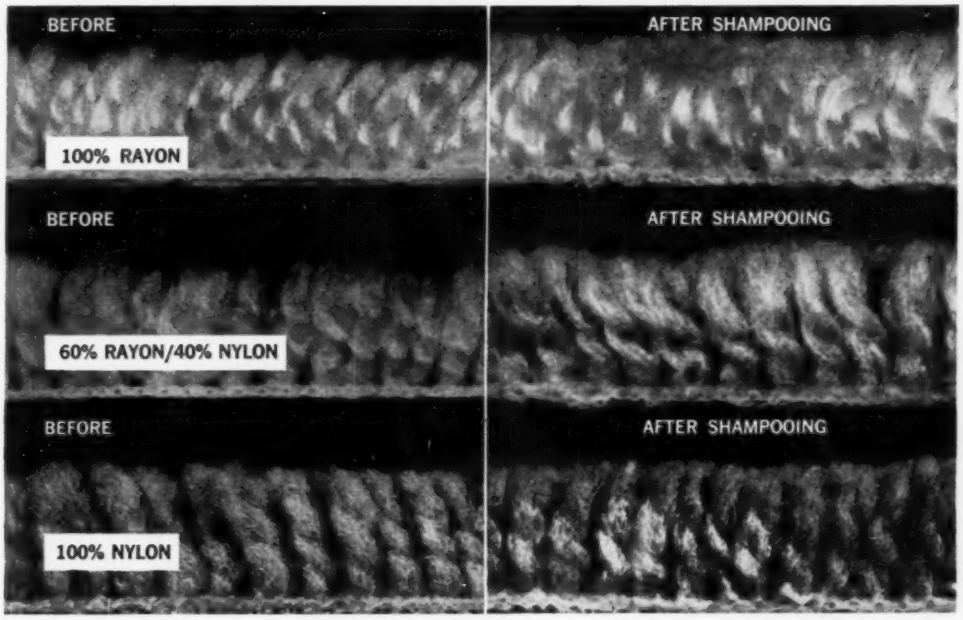
## ▶▶TEST NO. 2...NYLON COMPARED WITH WOOL

*CUT PILE, TWIST-SET*




## ▶▶▶TEST NO. 3...NYLON COMPARED WITH RAYON

*CUT PILE, NOT TWIST-SET*

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range. Therefore, additional yarns were spun from the same roving at a later date. When the results from strength tests on these yarns were entered on the original plot, the points seldom fell within the limits of reliability set by plus or minus two standard errors around the previously established points (see *Figure 4.*).

For the three yarn numbers included in the analysis, yarns spun at a later date were below and outside the statistically acceptable limits of the previously established strength curve, indicating a definite weakening in yarn strength probably caused by the storing of roving.

This roving storage effect is merely a preliminary result but suggests that spinning programs be designed to exclude, insofar as possible, the necessity for spinning additional lots from roving which has been stored for an appreciable length of time. The effect of roving storage is now being studied further by comparing the strength of yarns spun from unstored roving with the strength of yarns spun from the same roving after storage from one through twelve months. The study is not complete but results to this point indicate that storage for periods of considerably less than a year may have a significant effect on strength.

*Evaluation of a Machinery Development.* *Table IV* summarizes an evaluation of the effect of a newly developed processing machine on yarn breaking strength. The object of the analysis was to determine whether or not the machine adversely affected the strength of yarn. In the case of a cotton processing machinery development, the spinning test is the only acceptable means of determining if such a development is acceptable as an integral part of the cotton manufacturing process.

Comparisons were made of the breaking strength of a yarn produced without the machine with four experimental yarns of identical construction produced with the aid of the machine under varying

# What Joanna did to improve management - employee communications

■ TO IMPROVE communications between management, supervisory personnel, and employees, Joanna (S. C.) Cotton Mills Co. recently set up a system whereby everyone is represented in a committee designed to bring his ideas, suggestions, or constructive criticism to the immediate attention of other levels so that he may get prompt and satisfactory answers to his recommendations.

In the December, 1957, issue of *The Joanna Way*, Walter Regnery, vice-president and general manager of the mill, told the employees that the committee plan had been established with the following objectives in communications:

1. To transmit between individuals the information required to do their work speedily and well.
2. To build understanding between employees and management and among the members of the management team.
3. To encourage the participation of all operatives and supervisors in solving problems and improving operations.

"To accomplish these objectives," Mr. Regnery said, "it will be necessary to have a free and complete exchange of information between the various levels and individuals in our organization. It will be management's policy to communicate all information in its possession, unless it is mutually agreed by the individuals involved that there is a valid and important reason for not communicating this information."

*The Committee Plan.* Explaining that the exchange of information between individuals, departments, and levels can take place in three directions—downward, upward, and laterally, Mr. Regnery said that committees from each level, meeting weekly, seemed the best way to foster direct communication in all directions. There are four committees represent-

**Objectives of Downward Communication**

*(Responsibility of each member of management and supervision)*

1. To provide employees with all the information they need to perform their jobs adequately.
2. To keep them fully informed of management's over-all policies, programs, and goals in order to achieve understanding and support for these activities.
3. Creating an awareness that ideas and suggestions will have the careful consideration of supervisors and management.

**Objectives of Upward Communication**

1. To obtain, from all levels, ideas and suggestions which can be translated into more effective methods and procedures.
2. To provide a means for employees on all levels to discuss their problems and constructive criticisms with superiors who are in a position to remedy their problems.
3. To stimulate participation in the company's efforts at increasing efficiency and performance by providing a receptive climate for employees' personal contributions.
4. To enable members of management and supervision to keep in touch with employee feelings and attitudes so areas of misunderstanding can be corrected promptly.
5. To build understanding between employees and management.

**Objectives of Lateral Communication**

Lateral communication is the exchange of information between departments or between individuals on the same level in one department.

A free flow of lateral communication is required when two or more individuals share the responsibility for the success of a given project. In any such joint activity, each individual possesses certain information which must be shared with the others in order to get the job done quickly and effectively.

There is also a need for a free exchange of ideas in order to make the most of the combined brains and experience of all employees.

conditions. Breaking strength was converted to count-strength product in order to eliminate as nearly as possible slight differences in yarn number as a source of variation. In the first test, each of the experimental runs resulted in yarns that were slightly lower in strength than yarn produced without the machine. The difference in count-strength product between the control and experimental lot No. 1 was significant at the 95 per cent level, but the difference between the control and each of the remaining three experimental lots resulted in strengths that were not significant.

Because each of the experimental lots resulted in strengths that were slightly lower than the strength of the control yarn and one of the differences was significant, it was felt that a retest of the same yarn might produce more conclusive results. In the retest none of the differences was significant, although breaking strength for each of the experimental lots was still slightly lower than strength for the control.

An additional spinning produced yarn from the experimental roving that was higher in strength than that for the control for two of the four lots. After considering the results from the initial test, the retest of yarns and the additional spinning of yarns, it was concluded that the machine had no significant effect on breaking strength.

**Acknowledgment**

Acknowledgment is made to all members of the Cotton Mechanical Processing Section who provided data for this study and also to members of the Testing Unit of the Analytical, Physical-Chemical, and Physics Section for testing the yarns for the physical properties evaluated.

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ing all levels of Joanna's manufacturing operations:

1. Administrative Committee, consisting of members of management.

2. Overseer Committee, consisting of all manufacturing department heads.

3. Assistant Overseer Committee, consisting of 12 assistant overseers.

4. Employee Advisory Committee, composed of representatives elected by the employees in each department and on each shift.

Through his elected representative, every employee of every department has an opportunity to send to the other committees his ideas and suggestions.

"The Administrative Committee promises to work toward the goal of improving procedures as you suggest, setting up fair, wise policies with your help, and giving you all the information you want and need about all phases of our programs," Mr. Regnery told Joanna employees.

"The Overseer and Assistant Overseer Committees will, through their closer contact with the actual processes and employees, be able to offer many valuable suggestions," he continued. "In turn, they too will be helped by suggestions from the Employee Committee and by additional information from the Administrative Committee.

"It is our plan to transmit in writing to the other committees, or to the committee concerned, recommendations coming from each meeting of each committee so that these may be discussed and acted upon promptly, with written answers being sent back to the originators of each idea."

# Light fastness of cotton-rayon blends

## AATCC Convention Abstract*

■ STUDIES of the light fastness of selected direct colors were made on the following fabrics: 100 per cent cotton, 70-30 cotton-rayon blend, 20-80 cotton rayon blend, and 100 per cent rayon. The rayon used in the blends was 1.5-denier bright regular viscose.

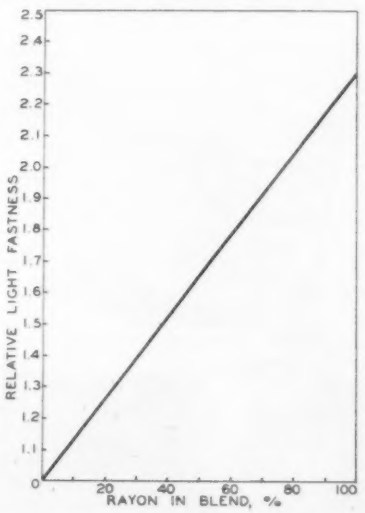
The fabrics were prepared for dyeing in the manner commercially appropriate for each and were dyed in the laboratories of the companies supplying the dyestuffs. Shades were dyed to match that of the 100 per cent cotton (0.75 per cent).

The dyes used were chosen because of their inherently good light fastness. They were:

Chlorantine Fast Yellow RNLL
Pontamine Fast Orange EGLL
Solophenyl Orange AR
Solantine Red 6 BLL
Pontamine Fast Brown AL
Calcodur Blue 2GFL
Solophenyl Bordeaux 2BL
Solophenyl Violet BRL
Calcodur Gray 2GFL
Fastusol Blue LF3GL
Lumicrease Green 3LB
Lumicrease Gray 3LB

The principal conclusion reached was that the light fastness of cotton-rayon blends is directly proportional to the amount of rayon in the blend. This is shown graphically in *Fig. 1*, which gives the average light fastness for the various samples, with the value for the 100 per cent cotton fabric being taken as 1.

Fig 1. Effect of rayon content on light fastness of cotton-rayon blends, average values.




*From paper entered in the intersectional contest by the Delaware Valley Section of the American Association of Textile Chemists & Colorists.

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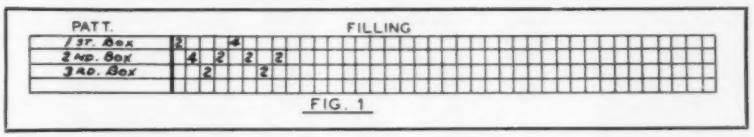
## How to prevent patterning in fancy fabrics

THE EDITORS:

There is always a possibility, when weaving fancy filling fabrics using slub or nub yarns, flakes, space-dyed yarns, and similar fancy filling yarns, that these yarns will cause unwanted and objectionable patterning effects in the cloth. This is particularly true of fabrics woven on single-shuttle looms, where no boxes are available to help break up this patterning (by running the fancy filling in two or more shuttles). Even on box looms when two or more shuttles of filling are employed this patterning can sometimes create seconds and almost unusable yardages of cloth. There are several ways in which attempts can be made to eliminate this undesirable effect.

On single shuttle looms the best way to prevent filling patterning is to select an appropriate filling for the cloth to be woven. This yarn should have the repeat of the slubs or other fancy effects as far removed from being equally divisible in the width of the cloth as possible. For instance, if the cloth is 72 inches wide in the reed and the repeat of the fancy yarn is 24 or 36 inches, each pick will place the fancy effects in approximately the same portion of the cloth and the tendency will be to form vertical effects rather than the scattered effect most commonly wanted.

However if the yarn repeat should be something like 27 or 39 inches, with a reed spread of 72 inches, there will be a larger number of picks woven before the fancy effects tend to fall in the same place, and the chances of obtaining a scattered effect will be that much better. The rule is that the least common multiple of the repeat of the yarn and the reed spread should be as long as feasible.




Box loom fabrics offer more opportunity, by their using extra shuttles of the fancy filling, to break up the patterning effect. For best results, even in box looms, the rule of obtaining as long a least common multiple of yarn repeat and reed spread should be followed.

Also uneven box chain patterns can be used. For instance instead of using, say, three shuttles of fancy yarn and picking out of box 1,2,3,2 or a similar sequence, a longer box chain pattern should be planned which will break up the fancy effect even more.

One such arrangement could be as shown in Fig. 1. This box pattern calls for 6 picks from #1 box, 10 picks from #2 box, and four picks from #3 box in the repeat of the boxes. Such an uneven arrangement could be extended for a much longer pattern chain to

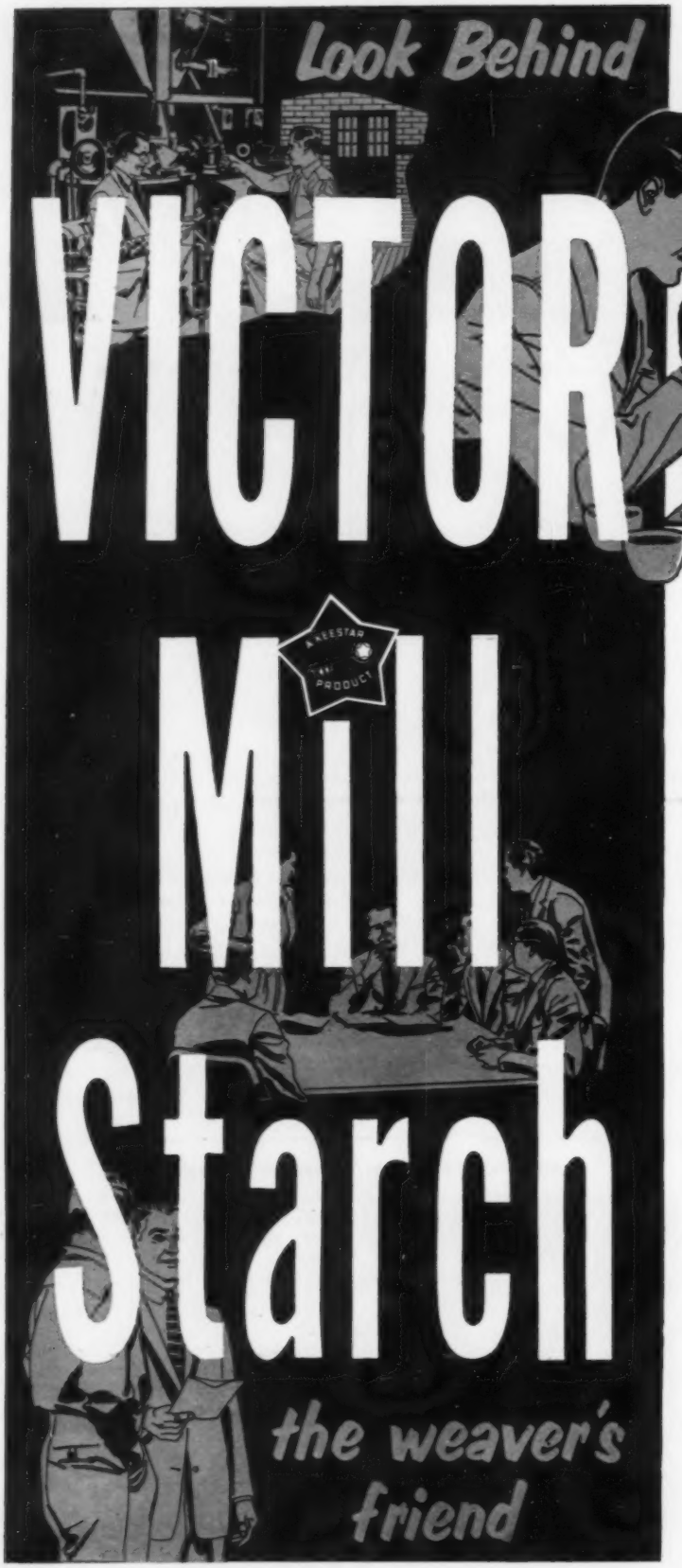
**Another TI Kink Contest Winner!**

W. P. Barton of Spray, N. C.

Yes, sir! Mr. Barton won TEXTILE INDUSTRIES' kink contest which ended on December 15, 1957.

For this he received the $100 cash award, plus payment at current space rates for his description of a method used to solve a card production gear problem in his mill.

For details on the current contest, which ends on April 15, see the box on page 133.

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further eliminate the chances of undesirable patterning.

When a fabric is made with a fancy weave, rather than plain weave, twill, satin, or other regular weave, it will also be found advisable to work out a box chain pattern whose repeat in picks is quite different to the repeat in picks of the fancy weave used.

Here again the guiding principle should be that the least common multiple of the picks in the box pattern and the picks in the weave repeat should be as many as feasible. The same methods will apply to box loom fabrics having two or more different kinds of filling.

By keeping the various repeat lengths of the fancy filling, the reed spread, the picks in the weave, and the picks in the box pattern all as widely different from each other as possible, the objectionable patterning of the fancy filling in the cloth can be reduced to a minimum if not eliminated altogether.

CONTRIBUTOR No. 9080

## Make these wrenches for the twister fixer

THE EDITORS:

One of the time-consuming items in a fixer's job is the poorly adapted wrench for a specific purpose (reference is had to the fixers on cotton twisting machines). In the course of time wrenches do get mislaid, are stolen, or are out on loan.

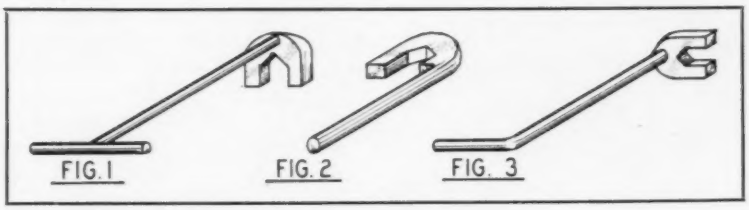
The writer, faced with this difficulty some years ago, designed a few wrenches which were particularly effective, and they may be of interest to some readers—perhaps more interesting because the wrenches in question were easily made in the mill's blacksmith shop.

One of the wrenches, Figure 1, was for use on the nuts and setscrews of the cylinder bearings between cylinders on the twisting machines. These nuts, etc., are often difficult to manipulate. However, with the special wrench it was a simple matter to cope with even the most stubborn items.

The shank of the wrench is long enough to extend two or three inches beyond the cylinders when in place. And the handle is of a sufficient length, say, six to eight inches, to permit a grip that will budge the most recalcitrant nut.

The wrench shown in Figure 2 was designed to get at setscrews that held the tight pulley on a belt drive on twisting frames. Access to the pulleys was such as to make it difficult to maneuver the setscrews. The claw shape enables the fixer to work from either side of the nuts and once in place there is a good bit of room to swing the wrench around.

The wrench in Figure 3 was designed for the nuts on long bolsters of spindles equipped with short length knee-brakes. With this wrench it is an easy matter to work on the nuts.




Overseers in any mill that has a blacksmith shop, or has connections with one, can, with a little ingenuity, develop wrenches that will be very effective and will save a fixer or foreman much time.

CONTRIBUTOR No. 9073

## Fancy reduces off-weight woolen roving

THE EDITORS:

A finisher fancy can eliminate heavy center ends and light ends on a woolen card. I had experienced uneven rovings coming off a woolen card when the center ends in a 50-yd reel would vary anywhere from 0 to 25 grains more than the side ends.

This unevenness would occur frequently on blends made up of 15% to 25% South American wool, 75% to 85% reprocessed wool, garnetted hard ends, and dusted card waste. The yarn was used in carpet weaving, and the uneven rovings caused streaks in the finished product.

We were running a cylinder speed of 72 rpm, and a straight tooth fancy speed of 425 rpm. I installed a clearer roll under the fancy, but to no avail; so I decided to work on the surface speed of the finisher fancy.

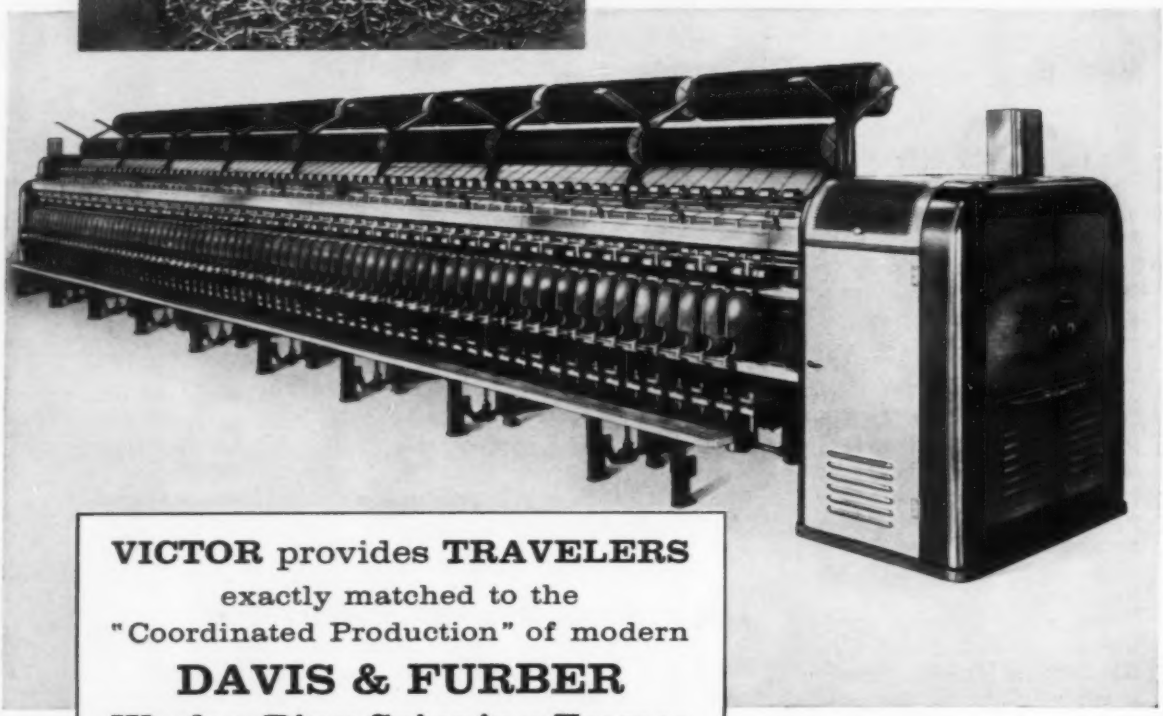
I replaced the 6″ fancy pulley with a 6½″ pulley and ran the card for a full week, checking the weights on every second or third doff. This record showed variations not exceeding 8 grains on a 50-yd reel of individual roving ends.

These results induced me to consider a special fancy of low bend, so I selected a 3-3-3 x 1½, and 65-degree pitch. I installed this fancy in the card at the original 425 rpm.

After comparing both fancies at 425 rpm, I found the low bend had less variations across the spool; therefore, I decreased the speed of this low bend fancy, and found my variation within two grains in 50 yards.

This low-bend fancy increased the weight of my strippings so I conceived the idea of running two fancies in tandem on the same cylinder. I re-covered the fifth worker on the finisher cylinder with 3-3-3 x 1½ straight-tooth

## Keeping pace with every development in spinning progress



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fancy wire, and ran this fancy off the finisher by means of pulleys. This second fancy decreased my strippings, and the reelings across the spool varied only from 0 to 2 with each sliver weighing of 50 yards.

CONTRIBUTOR No. 9086

## Bin card speeds hosiery inventory

THE EDITORS:

I have worked in the hosiery game for some time in Pennsylvania, New Jersey, and Mississippi. I was in the production department, and quite a few times a check of stock had to be made, with always the same procedure—count all the time. I am sure that if all mills had a steady check each day through a card check, it would save lots of manhours.

The drawing shows the kind of bin card which should be at each bin. With it the store keeper or the stock man can tell the sales department how many dozens he has on hand at any time.

CONTRIBUTOR No. 9066

Description Style 707 8½ Blue

| DATE | ON HAND | REC'D | BAL. | SHIP'D | BAL. | NAME |
|---|---|---|---|---|---|---|
| 12/11 | 60 Doz | 0 | 60 | 30 | 30 | Bob |
| 12/15 | 30 | 50 | 80 | 10 | 70 | Geo. |
| 12/17 | 70 | 0 | 70 | 5 | 65 | Mae |
| 12/19 | 65 | 150 | 215 | 40 | 175 | Bob |
| 12/20 | 175 | 0 | 175 | 0 | 175 | Stock |
| 12/22 | 175 | 10 | 185 | 30 | 155 | Geo |
| 12/22 | 155 | 0 | 155 | 0 | 155 | X |
| 12/22 | 155 | 20 | 175 | 10 | 165 | Mae |
| 12/23 | 165 | 30 | 195 | 0 | 195 | X |
| 12/24 | 195 | 15 | 210 | 10 | 200 | Bob |
| 12/24 | 200 | 0 | 200 | 40 | 160 | Geo |
| 12/24 | 160 | 0 | 160 | 30 | 130 | Mae |
| 12/24 | 130 | 0 | 130 | 30 | 100 | Bob |

Balance on hand 707 - 8½
12/24 100

## Blistered clothing? Watch room temperature

THE EDITORS:

Extreme temperature variations in the card room can cause card clothing to fly up. Eighty to eighty-five per cent of flying-up occurs either in early spring or late fall when the weather is subject to rapid and frequent changes, and when the temperature is likely to vary many degrees over short periods.

Often during a few warm days of spring, the heat will be turned off in the card room completely. Then often a cold weekend will come along when the machinery is stopped and the temperature inside the card room will drop below 70 F.

This temperature drop will cause the card cylinders to shrink or contract. The shrinking will permit the clothing to come loose and slip precariously about on the cylinders, causing loose pockets to form. When the temperature is restored to normal the cylinder will expand, but the clothing is not tightened back up in the same proportion as it was before. The loose pockets or strands remain loose.

The centrifugal force of the cylinder at high speed, and the strain of carding applied to the loose clothing, will cause the pockets to fly up or small blisters to form.

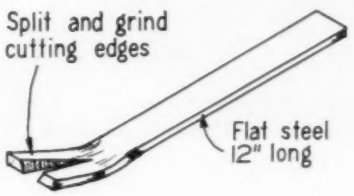
No doubt the clothing manufacturers have had to take the blame for many card cylinders that have become loose and blistered when the real blame should have been on the master mechanic or whoever is in charge of maintaining uniform temperature in the card room.

CONTRIBUTOR No. 9087

## Handy knitting mill tool

THE EDITORS:

A handy tool to keep in the kitting room shop for use by everyone who needs to cut the strapping of a case of yarn, pull and/or cut nails, bolts, etc., can be made from




### KINK CONTEST!

**$100 will be awarded the winner**

**Send your entry now! This contest ends April 15, 1958**

Every kink, short-cut, time-saver, or quality improvement suggestion entered in the contest will be paid for immediately upon acceptance. The $100 award will be made as soon as all entries are judged.

The contest rules are simple:

► All contributions must be postmarked not later than midnight, April 15, 1958.

► No limit to the number of entries an individual may submit in any one contest.

► All entries paid for upon acceptance — no waiting. Extra payment for photographs that are usable. Extra consideration is also given kinks accompanied by legible pencil sketches or drawings.

► Entries must not have been published previously and must not be submitted to any other publication.

Send your contest entry to: The Editors, TEXTILE INDUSTRIES, 806 Peachtree St., N. E. ta 8, Georgia.

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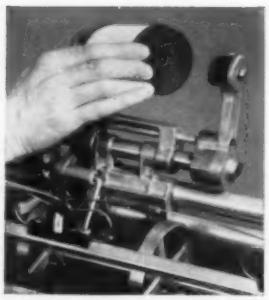

**ONE HAND** does it, without touching the yarn . . . operator can doff a full spool in a split second, with a flip of the hand . . . and her fingers never even touch the yarn.

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a length of steel.

Split the steel 1½" from the end to form claws like those on carpenter's hammers. Sharpen the sides of the claws and bend them slightly to form a "heel" for prying.

CONTRIBUTOR No. 8993

HOW OTHER MEN MANAGE

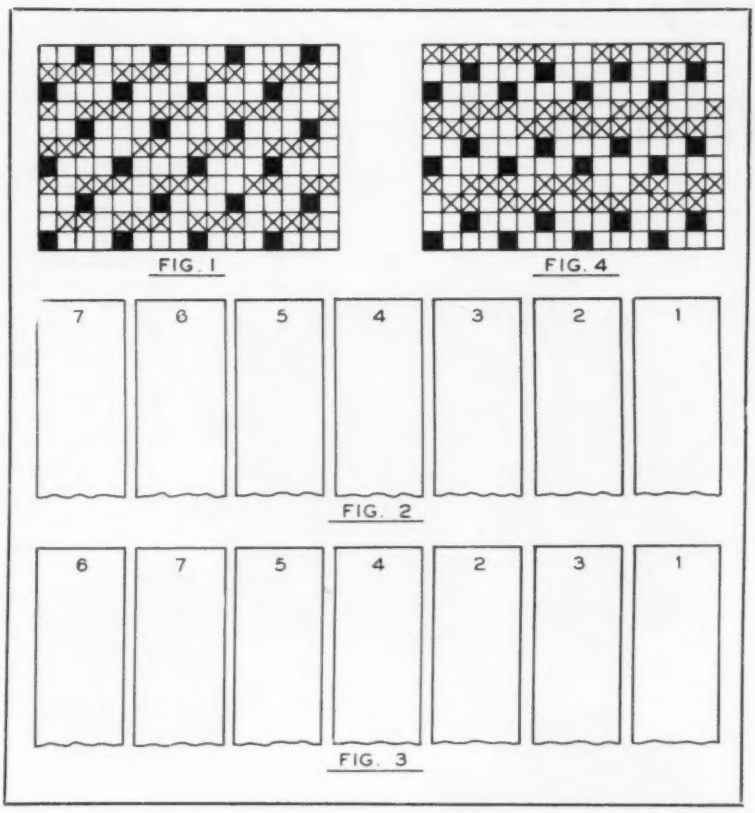
# You can transfer pick-and-pick fabrics to automatic box looms

THE EDITORS:

Many Jacquard weaving mills, having both pick-and-pick and automatic box looms, often find it expedient to transfer pick-and-pick fabrics to the automatics. This frequently happens toward the end of a season when, to reduce fabric costs to meet competition, the lower cost and increased production features of automatic looms can be utilized. For many weaves and fabrics this can be readily done by relacing the Jacquard cards, thus eliminating the need of additional designing and card cutting.

One basic weave, used in several different types of fabrics, is the double plain. This weave for fabrics on the pick-and-pick loom is usually made with the warp dressed 1 end ground, 1 end color, with the filling inserted as 1 pick ground, 1 pick color. This weave on automatic looms usually has the warp dressed in the same manner, 1 end ground, 1 end color, with the filling 2 picks ground, 2 picks color. The ground ends weave as plain weave with the ground filling, the color ends as plain weave with the color filling, with various mixtures of weaves also employed for fancy effects. Fig. 1 shows the weave diagram for the ground effect in the cloth. In this diagram the risers on the ground ends and picks are represented by solid squares, the color ends and picks by crosses.

Fig. 2 shows the usual card lacing of the Jacquard cards when used on the pick-and-pick loom. To adapt this weave to an automatic loom the cards should be relaced in the manner shown in Fig. 3. This will produce a double plain weave as shown in the weave diagram Fig. 4.




The design in the cloth will appear much the same on the automatic loom as on the pick-and-pick, the only difference being that the filling will be 2 x 2 instead of 1 x 1. For the benefit of the weaver and loom fixer the relaced cards should be renumbered consecutively. This is best done by using a different color for the new numbers and retaining the old numbers for the possible use of the designer and card cutter in repairing broken cards, or making desired alterations in the design.

Many other basic weaves and fabrics can be converted from pick-and-pick looms to automatics in this manner. However not every weave will permit this, as there are some weaves and fabrics that would be grossly distorted if this were attempted. The best way to determine if this conversion is feasible for a given design, is to make two comparative weave diagrams such as Figs. 1 and 4. A study of these diagrams will readily determine whether the cards can be relaced to produce the fabric wanted, or if a new design and set of cards will have to be made for the automatic looms.

CONTRIBUTOR No. 9081

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# Discussion on "What Size Package Should We Make?"

THE EDITORS:

In a recent group review of "What Size Package Should We Make?" (in the December, 1957, issue of TI, pp. 77-80, by F. G. Ernest) there was general commendation of the author's treatment of this important subject. However, there were two points brought out in the discussion.

First: The formula (p. 78) for unwinding time is considered incorrect. D should be substituted for E in the denominator.

**Unwinding Time for Spinning Bobbins**

| Yarn No. | Net weight per bobbin (oz.) | Yards per bobbin | Time in minutes at various drum speeds (drum circumference, 0.9163 yd.) 1000 rpm | 1100 rpm | 1200 rpm | 1300 rpm | 1400 rpm |
|---|---|---|---|---|---|---|---|
| 12 | 10 | 6300 | 6.83 | 6.25 | 5.73 | 5.29 | 4.91 |
| 16 | 10 | 8400 | 9.16 | 8.33 | 7.64 | 7.06 | 6.54 |
| 20 | 8 | 8400 | 9.16 | 8.33 | 7.64 | 7.06 | 6.54 |
| 24 | 8 | 10055 | 10.98 | 9.97 | 9.14 | 8.44 | 7.84 |
| 28 | 8 | 11766 | 12.84 | 11.67 | 10.69 | 9.89 | 9.18 |

*(Editors' Note: CONTRIBUTOR NO. 9084 is right. So is the formula in the original manuscript submitted by Mr. Ernest. The error was made during the process of preparing the material for publication. Here is the correct formula for unwinding time:*

$$\frac{A \times 3.1416 \times B \times (100 - \text{contraction})}{36 \times C \times D} = E$$

*The editors regret having made this error and appreciate this reader calling attention to it.)*

Another viewpoint expressed was that the yards per bobbin, and the unwinding yards per minute were the important factors in determining the most economical package arrangements. This would remove the need of considering contraction, roll speeds, or doffing times, and greatly simplify the mathematics in calculating values. This simple formula gives yards per bobbin:

$$\frac{\text{Ounces per bobbin} \times 840 \times \text{yarn number}}{16}$$

The unwinding speed of the drum equals its speed in revolutions per minute times its circumference (0.9163 yards). The yards per bobbin divided by the unwinding yards per minute gives the time required to unwind each bobbin. Values as shown in the accompanying table help in correctly modifying bobbin weights, drum speeds, or cycles to maintain production balance and reduce loss of winding time. Speeds, sizes, and weights given are for comparison only to show effects of different factors.

We should like to hear comment from other readers on this neglected subject.

CONTRIBUTOR NO. 9084

THE EDITORS:

Regarding CONTRIBUTOR NO. 9084 and his use of the formula he gave for finding yards per bobbin, I feel that, while this formula is correct, it rather missed the main emphasis of my article.

My contention is that it is of the utmost importance to coordinate between conditions in the spinning room and the subsequent unwinding processes.

Thus, for instance, if for some reason it becomes necessary to lighten the traveler on the spinning frame, the yarn is then not packed quite as tightly on the spinning package and as a result the running time will be reduced.

In a case like this it will be possible to correlate immediately between the new running time and the new unwinding time by means of Table 1 of my article.

Supposing that for some reason a tooth of twist would have to be added to the spinning. Immediately the front roll speed would change and of course the running time would also be affected.

Again the new predicted unwinding time could be obtained immediately from the same Table 1.

F. G. ERNEST

*(Your contributions to this discussion are invited. Payment at current space rates is made for letters published.—The Editors)*

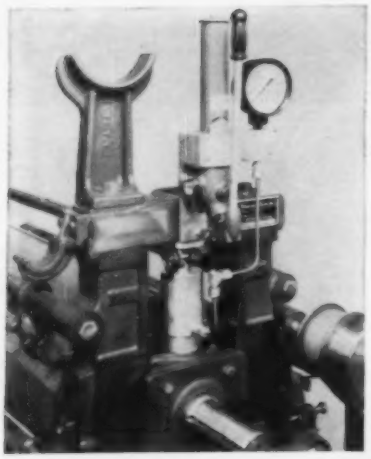
# Keep parts in muffin tins

THE EDITORS:

On the work table in the knitting room shop where so many different repair jobs are carried out, the fixers constantly need small items such as nuts, eyelets, belt links, etc. These, if not kept handy, cost a considerable amount of lost fixer time.

For holding the numerous small items used around the clock, we keep a muffin pan which contains 12 small bins. The pan is kept in easy view and reach of the fixers.

CONTRIBUTOR NO. 9038



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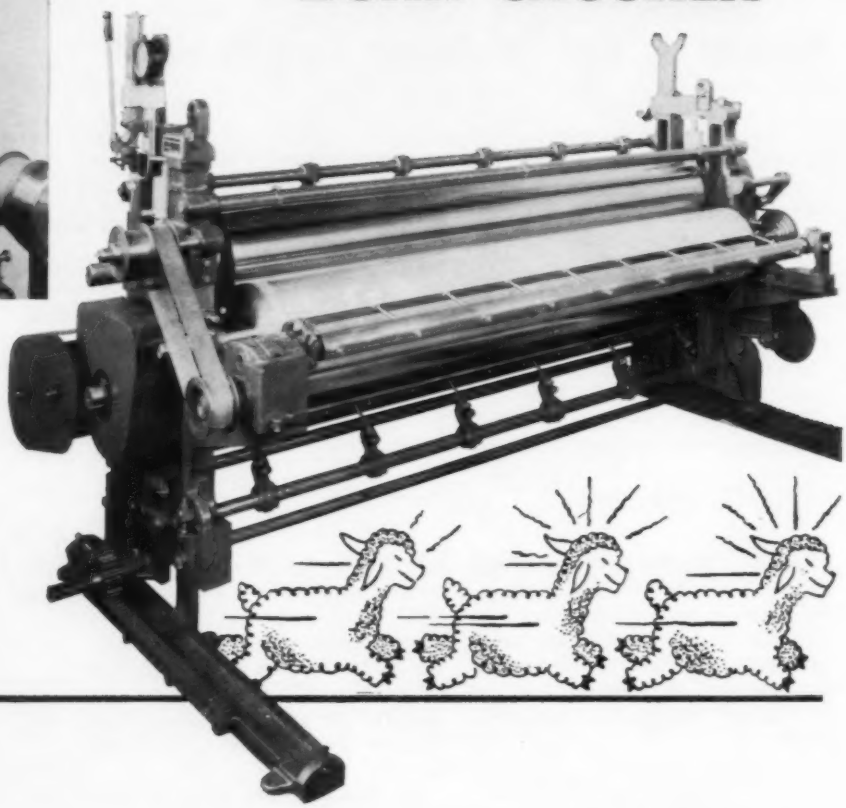
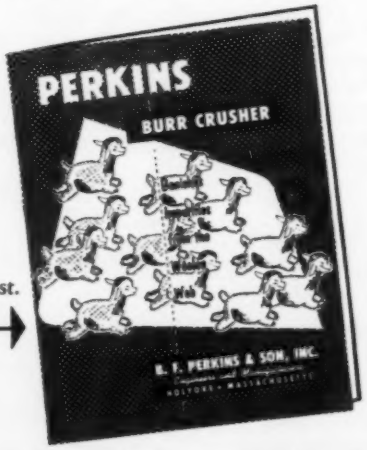


## Banishes Impurities from the Woolen Web

Perkins Burr Crusher Machines are manufactured by the original manufacturer of the first American-made Burr Crusher Machines during the early period of installation in this country and Canada, from 1941 to 1944. The machines are standard and the parts are readily replaceable on existing Burr Crushers now in operation. All moving parts subjected to wear, such as the chilled iron rolls, bearings, gears, studs and sprockets, are also standardized with the many Peralta Machines now in operation throughout this country and Canada.

Machinery and Engineering Corporation of Amherst, New Hampshire, distribute and service the Perkins Burr Crusher Machines.

This bulletin, which gives complete Burr Crusher information, yours on request.

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# Knitting Section

# How to improve throw-out rods

*Simple conversion offers several advantages to users of Banner SCP and SCOP machines*

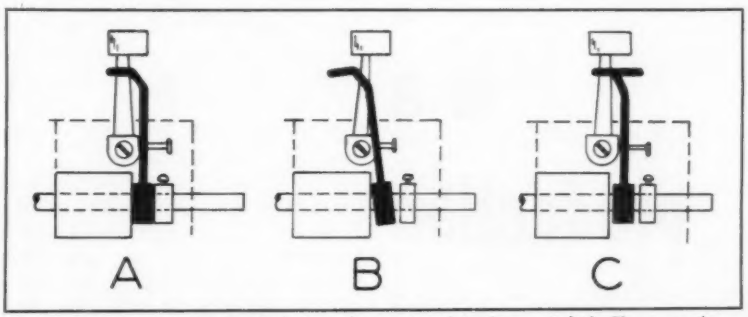
by Winston Shewmake
Exclusive

OFTEN a fixer who maintains a battery of Banner SCP, or SCOP, knitting machines finds that the widening pick shank throw-out rod has become worn about the throw-out rod shaft, that the securing collar has become worn or out of position, or that the rod itself has taken a slight bend.

In such instances the widening pick is thrown out of operational scope, and substandard production follows.

To correct the malfunction caused by a faulty throw-out rod, a replacement and adjustment of the throw-out rod is usually required. After the rod has been replaced and the unit adjusted, the widening pick operates with little

*(Continued on page 148)*




The ideal position of the standard type throw-out rod is shown at (A). The worn throw-out rod at (B) will function incorrectly. At (C), the converted rod with its cross bar.

Left, conventional front widening pick throw-out rod; center, converted for front or back use; right, conventional rear rod.

Training sessions (left photo) are held for the foremen and key operators; they are usually held in five two-hour sessions. In the first two hours the training director outlines what is to be done and gives a fairly complete picture of instruction breakdowns and techniques. Top management sometimes sits in on the first session. The balance of the sessions are mostly actual practice. The breakdown should be made on the job, with the help of one of the best operators (right photo). Information from her points out the important but less obvious "key points" that are so necessary for the learner to know for her to be able to turn out a quality product.

# Training is a production tool

*Training of operators must pay off in increased production, fewer seconds, and improved skills. Here's how to insure that it does*

by Ralph C. McLeod
*Director of quality control and training*
*Ware Knitters, Inc.*
*Ware, Mass.*

Exclusive

THE BASIC principles of the instruction program outlined here were first given nationally by Training Within Industry during World War II. This training was given to about two million supervisors. It was my good fortune to be on the staff of this organization for about three years in Connecticut.

For the past three years I have been adapting the Job Instruction Program to my company, particularly to our four stitching rooms, located in four states. None of the sound basic principles has been changed. There have been only minor changes in the method of using these principles. Any change made was from experience gained in the plant.

No industrial training should be merely a matter of giving "courses" with the hope that the employees will get something out of them. That is not sound economically; it is not practical, and such a plan usually fails.

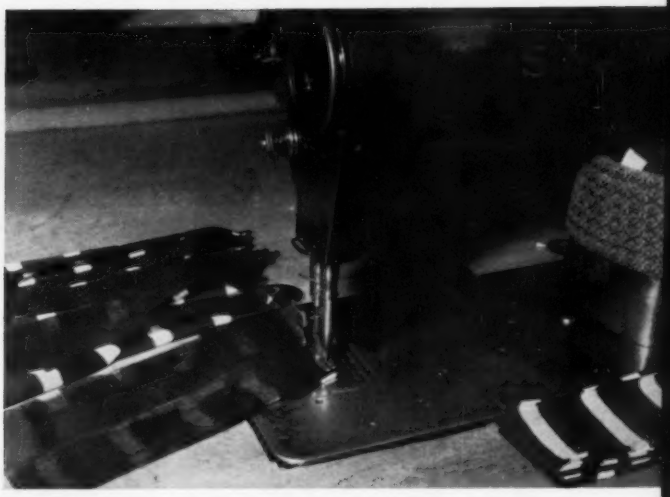
Some workers in industry too often tend to think of what they learned in school as an experience they had in another life—something that does not have too much to do with their work today. This point of view is sometimes carried over into their attitude to industrial training programs.

Industry cannot afford the luxury of such attitudes. Training must be thought of as a production tool that must be used on the job every day. Training must pay off in increased production, less scrap and reworked products, and improved skills. Rather than leaving it up to the individual trainees to get something out of training, we say, "If the worker hasn't learned, the instructor hasn't taught." The burden rests then more with the instructor than the trainee.

Whether training is advisable or whether training is needed depends on what "problems" a company has and what is causing them. Only then can it be determined what training is needed, and no training should be given unless the need is first established.

Here are some of the types of problems that most companies face every day, and supervision, from the plant manager down, must take some sort of action upon them. If lack of understanding is the cause of such errors, instruction will help.

1. Deliveries delayed because of errors and mistakes.
2. Parts returned because they weren't made correctly.
3. Poor planning.
4. Employees not up to expected production.
5. Excess wear and tear on



"Key points" are illustrated in the photos above. Left: stitch shoulders. The bodies of the garments are on the table with the neck toward the machine. This would seem to be obvious, and it is; but the location of the work in the proper area increases speed and reduces handling, making operations easier and resulting in better quality. Right: lockstitch bar top of plaques. Striped plaques on the table with top to the right for easy folding before stitching. Dark linings under the machine are with top toward operator for easy pick-up with right hand to align on folded plaque. Notches at top of plaque must align; operator must stitch from notch to edge.

equipment.

6. Too much left to the operators' judgment.

7. Too much scrap (seconds).

8. Too much time to get up to production.

9. People get discouraged and quit.

10. Instructed the wrong way.

There are an infinite number of such problems. The cause of each one may vary with each company. Only management can determine the cause.

Let us take one problem: "People get discouraged and quit." This could be an employee relations problem, use of a poor work method, or lack of proper instruction. Certainly, a poor work method, with poor instruction, can cause a potentially excellent employee to quit.

For the purpose of this article, let us assume that management has determined the cause of the problems to be a lack of knowledge, and there is a need for instruction training. It has been decided to have the personnel department handle the training, or possibly a training director has been appointed.

*Management's Help Is Needed.* Up to this point, management has followed the correct step-by-step procedure to get a training program started. Too often, however, members of management feel that their part in the training picture is now over. They are seriously for training. They have started "classes." True, the personnel or training departments can run the training programs, but these are staff departments that can only advise, suggest, or even get cooperation from some segments of the organization; but management—the line organization—is the only group with the power to put training to work on the job.

Management's responsibility is to make training work. The best training program may fail without management's authoritative backing, after the formal instruction period is over. Management must overcome the feeling left over from school days that what is given in the classroom is separate from the job. They must sell those at any level who feel that the training is for someone else, and must impress that the principles learned in the training sessions will result in better use of practical knowledge.

One successful method to accomplish this is to appoint someone in authority, as high up in the managerial line organization as possible — possibly an assistant superintendent — to work with the training director to see that the training is used. This person must believe in the training given. He does not have to take the training himself, although this too can be helpful, but he must understand the principles of the program and its application on the job.

*Instructor's Responsibilities.* The instructor is responsible for the developing of the content of the training program. He should understand the inner workings of the company, so that he can understand the problems. From these problems he may recommend other needed programs to management.

Any programs developed should have clearly designed objectives. What are they designed to accomplish?

Factual reports should be sent to members of management or their representative. Wherever possible, before-and-after figures should be used to show increased production, less scrap or rework, reduced cost of training new employees, increased earnings, etc. Training must be worthwhile in dollars and cents.

The key to a successful Training Department is never to forget that management is the "boss." The instructor is responsible to management. He is a staff man and should not have real authority, because

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none of the people in the line organization can have two bosses. The instructor can advise management, but it is management that must make training work on the job.

Top management, and down through superintendents, can be informed about the training programs given, in a summary by the training director. Top management in some mills takes the actual training or sits in on the first training session of the training group as observers.

Foremen down to and including key operators, who will be used as instructors, must take the course.

There are two main objectives in supervisory training for instructing: a complete understanding of the method breakdowns of each job for the instructors to use when instructing, and a thorough knowledge of the techniques of how to instruct.

*Instruction Breakdowns.* The instruction breakdown is probably the most misunderstood part of instruction training. This breakdown is not an analysis made of the details of a method, nor is it the elements of a time study, such as industrial engineers would make. The purpose of the instruction breakdown is to tell the instructors what must be understood by the learner who knows nothing whatsoever about the job.

This breakdown then, is for the instructor, and is not given to the learner. The training period for the instructors shows them how to make a breakdown, but only for the purpose of understanding the breakdowns they will receive. This is a change from the training-within-industry pattern in that the instructors make their own breakdowns.

We found that some of the key operators and sub-foremen had different ideas as to exactly how to do the same operation. Some of the shortcuts used were bad for quality, or they required too much skill or judgment for a learner to pick up readily. Some of the habits of the instructors were different from the accepted method used in setting the rate, and hurt earnings in some cases, rather than increased them.

It takes practice to make the best instruction breakdowns. Most sub-foremen and key operators do not have enough jobs to break down to acquire this skill, and have even less time to do all the checking necessary to be sure that their methods are acceptable to the designers, methods department, and foreman of the department.

Depending on the size of the company, one or more trained persons should be designated to make breakdowns. They should be in a position to go to anyone connected with the job in question, to work out any problems that develop. It is most important to develop as good a method as possible on a new job and it is equally important to standardize the use of the best method on all jobs. Whenever better methods are developed, a revised breakdown informs everyone concerned of the improvement.

Whenever a new method improves quality, it should be sold to the operators, with the reasons why the change is to be made. Explanations save many personnel relations headaches. In some cases, where quality is not affected and the "old timers" are turning out good work in reasonably good production, it may be wise to allow them to continue with their old method. New operators, or old operators on new work, should be taught the accepted method.

During the development stages of a new product, it is often not practical to make instruction breakdowns. Too many changes are made, but the breakdown should be made as soon as it is practical, probably when salesmen's samples are made.

The place to start a breakdown is with a good operator, after a method has been somewhat established. If possible, work with one of the key operators, who has had instruction training; she understands what the objective is and can be of great assistance on troubles with design and the less evident tricky parts of the job.

Elsewhere in this article are two types of breakdowns. The one including "important steps" and "key points" is recommended; the one containing "elements" of the job is not.

An "important step" is a logical segment of the operation when something new happens to advance the work. It is possible to list "important steps" differently without hurting the breakdown. The "important steps" are merely fairly large parts of the job in sequence. They might be said to be the "anchors" or "hatracks" on which you are going to hang the "key points."

About 80% of most jobs is self-evident and can be learned by watching the instructor do the job. It is the 20% that is more difficult and where the learner falls down. These are the "key points."

A "key point" is anything in a job that will make or break the job, or injure the worker, if not understood. It contains the important "knacks," "tricks," and special bits of information that make the job easier to do. "Key points" contain all quality points.

The breakdown of the same job made up of "elements" covers the sequence of what is done in some detail, but it omits a large part of the job that will cause the learner trouble.

The highly experienced operator does much of her work automatically, even almost unconsciously. She needs the "key points" on the breakdown so she will not fail to give the learner those things that must be known for her to do the job properly.

Instruction breakdowns have many uses besides actual instruction. Again we come to the "problems." An operator is not up to expected production, or she has too much work that has to be repaired. The foreman can take the breakdown and check to see if she is doing the job properly on all "key points." Such an operator may need reinstruction. Occasionally poor work occurs, even when the breakdown is followed completely. This indicates that a "key point" is missing and a revised breakdown is in order, if the problem is to be overcome.

If a point is not covered, it is hardly the fault of the operator. This brings us again to the statement, "If the worker hasn't learned, the instructor hasn't

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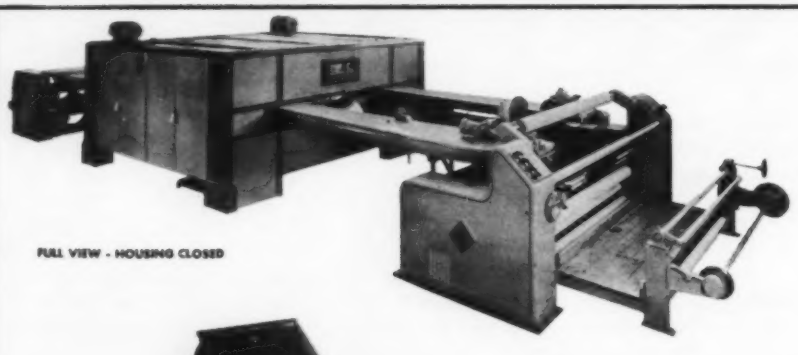

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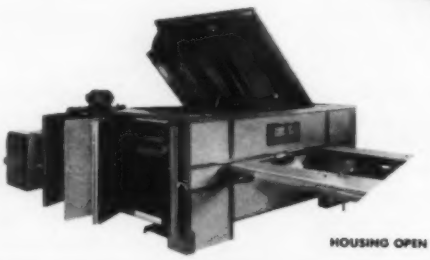

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taught." At first, most people have their doubts about the practical truth of this slogan, but with the conscientious use of proper instruction, they discover, when they look critically at themselves when someone they are instructing fails, that they omitted a "key point" or did not check to see if the person instructed really understood. The fault was theirs.

No instruction breakdown can ever be said to be the last word on the world's best method. We can always concede that there is a better way. Everyone should be encouraged to try to improve methods. It is important that suggestions for improvement be approved by the designer, methods department, and foreman, before they become official, otherwise piecework rates may get out of line, quality may deteriorate, or more problems may develop elsewhere.

**Engineering "Element" Breakdown***

**Part:- Overlapping Plaque.**

**Operation:- Attach to Front (Lockstitch)**

| No. | Description of Element |
|---|---|
| 1. | Fronts and plaques on table. |
| 2. | Pick up plaque. |
| 3. | Place right edge under machine foot. |
| 4. | Pick up front of garment. |
| 5. | Align left shoulder to right edge of plaque. |
| 6. | Stitch front to side of plaque. |
| 7. | Slit corner of front. |
| 8. | Turn to stitch across bottom of plaque. |
| 9. | Align bottom of front and plaque. |
| 10. | Stitch across bottom. |
| 11. | Slit corner of front. |
| 12. | Turn to stitch third side of plaque. |
| 13. | Align and stitch third side. |
| 14. | Clip all threads. |
| 15. | Turn correct side up. |
| 16. | Lay on bench. |

*Not recommended for training operators

*Comparison of Breakdowns.* Let us inspect the two breakdowns listed and see the difference. The one listing the sequence of "elements" is more a list of details that an engineer might make to analyze a job for improvement, or possibly for a rough time-study. Almost anyone who can sew, can examine a garment and tell what the sequence of operations is, even if she cannot actually do the work. A good instruction breakdown gives the essential tricky facts or "key points."

Let us now look at the breakdown with "important steps" and "key points." The person making this breakdown does it on the job (never from memory at his desk). He says, "What must be covered that would cause a learner to make mistakes, if it were omitted?"

For example:

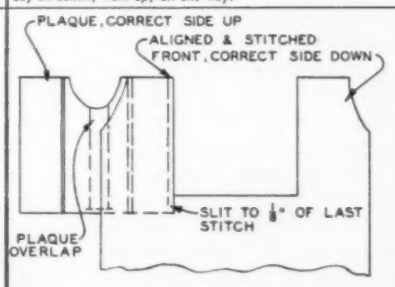
First step—"neck toward you." This is the best position for quickest pick-up.

Second step—Plaques "correct side up" and garment front "correct side down." This may not be too important to a time-study man, but essential to the operator.

The designer planned for a 3/8" seam in designing the garment. In some cases, a different width of seam could affect how the other parts go together.

"Straight" seam at this point is

JOB BREAKDOWN SHEET FOR TRAINING OPERATORS ON NEW WORK

| Ware: Vertical trim overlapping plq. polo | RCM DATE: 6/4 |
|---|---|
| PART: Overlapping Plaque | OPERATION: Attach to front (Lockstitch) |
| IMPORTANT STEPS | KEY POINTS |
| 1. Position Plaque | Fronts on table to left, neck toward you.<br>Finished plaques on table to left. |
| 2. Attach plaque | Finished plaque, correct side up.<br>Neck away from you.<br>Under foot at right edge at top.<br>Front correct side down.<br>Align left front shoulder piece to shoulder and right edge of plaque.<br>Stitch 3/8" seam to 3/8" below front opening - straight.<br>Slit corner of front to 1/8" of last stitch.<br>Needle down and turn 90 degrees.<br>Align bottom of front opening across bottom of plaque.<br>Be sure plaque opening straight and square.<br>Stitch 3/8" seam to 3/8" beyond front opening - straight.<br>Slit to 1/8" of last stitch from bottom corner of front opening.<br>Align at shoulder and side of front opening with side of plaque.<br>Stitch 3/8" seam straight to shoulder.<br>Clip all threads. |
| 3. Lay aside | Turn front correct side up.<br>Check bottom corners for quality.<br>Lay on bench, front up, all one way. |
| |  |

a most important quality detail.

"Needle down" before turning is automatic to an experienced operator, but probably new to the learner.

These, then, are a few of the "hows" and "whys" that the instructor must be sure that the learner understands. They are a check list for the instructor to be sure nothing important is omitted while instructing.

Quite often it is hard to put into words exactly what is meant. In such cases, sketches are important for clarity.

*Instruction Technique.* Before the actual instruction, there are certain things that should be done before the instructor meets the learner. The instructor must be notified well ahead of time.

The instructor must always review the breakdown of the job to be instructed. If the job is a long one, thought should be given as to whether or not the whole operation should be broken down into instruction sections. A learner can only absorb so much at one time. Most sewing jobs, however, usually can be instructed in their entirety at one time. Plan on how much skill the learner should have and by what time.

Have everything ready with the right equipment, materials, and supplies.

Have the workplace properly arranged, just as the worker will be expected to keep it.

Too often the person to be instructed is brought up to the instructor without previous knowledge. This is a poor beginning.

There are certain techniques to follow on how to instruct:

First, the instructor spends a short time to prepare the worker. The learner should be greeted in a friendly manner, to make the new employee feel as if she were among friends. State what the job is, and find out if the learner has ever done any of this kind of work. Such knowledge may guide the instructor during the instruction period. Explain briefly why the job is important. If the learner can be made interested in the job, there is more chance of success and cooperation.

Just before the actual instruction begins, see that the learner is in the best possible position to see the operation. In fact, this thought should be kept in the instructor's mind at all times, as it may be necessary to change the position of the learner from time to time for best observation of the work. Never show anyone across a table, as they will then observe backward what is done.

The instructor can now present the operation, which consists of telling, showing, and illustrating, one "important step" at a time, with every "key point" stressed repeatedly. The instruction should be complete and clear. Care should always be taken to be sure that too much is not being given at one time.

It has been said that our mind is like a tea cup, it can only hold so much. You can keep pouring but only so much will stay in the cup. This is important to remember. The instructor must be patient, but when it is felt that the learner has learned enough to try it herself, the instructor changes places with the learner.

Third, the learner tries to do the job under the observation of the instructor. Here begins the most important part of the actual instruction. It is best to use the following procedure.

(1) Let the learner proceed this first time with as little interruption on the part of the instructor as possible. Remember that the learner is probably copying motions at this point. She is just trying to remember what the instructor did next. Wordy interruptions break her train of thought and she is lost.

Since we are creatures of habit, and habits are easy to form and hard to break, the instructor should correct errors as they occur, but the correction should be as brief as possible. Sometimes the learner will do the job correctly without help, but this does not mean that she really understands. Understanding now is necessary.

(2) The most important hurdle that the instructor has to make, is to get the learner to explain the job to the instructor. This can be embarrassing, as sometimes the learner thinks that it is up to the instructor to do the explaining. Of course, the reason for doing this is to find out what the learner really knows about the job. It must be done.

A good leading statement for the instructor at this point is, "It is always easier for *me* to remember something if I can explain it to someone else, so you explain the job to me; I am sure it will help you."

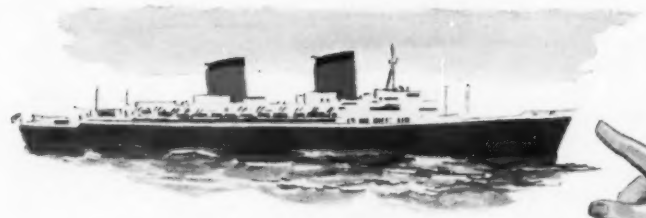
The instructor always corrects errors as they occur, but her main thought and interest at this time is to check off in her mind the "key points" the learner has correctly repeated back to her. She then is sure of what the learner really understands. Most learners miss some of the "key points" in their explanation of what they are doing. The instructor makes a mental note of what was missed for future reference, because, until the learner tells the instructor all the essential facts, the instructor cannot be sure that she really understands.

(3) Before the learner tries the job again, the instructor tells her that now she will ask her questions about the job as she is doing it. These questions always include the "key points" not covered by the learner. These questions must be asked in such a way that a definite factual reply is given. The instructor should never ask a question in such a way that it can be answered "yes" or "no." The learner may be guessing.

Never say "Do you understand?" It is only human nature to say "yes" whether this is true or not. The correct type of question might be, "How wide a seam do you take?" If the learner replies, "⅜"," then and only then does the instructor know that the learner knows.

The above procedure is continued until the instructor believes the learner can do the job by herself for a short time without doing too much damage to the product. A learner usually becomes nervous if the instructor is watching her closely for too long a period. She should be put on her own for a while, just as soon as possible. This relieves any tension that may have been building up, and it gives a chance for the learner to think for herself.

The learner must be impressed that she should go to the instructor



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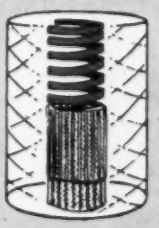

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if she has any questions, rather than to the other operators. How long she should be left on her own depends on the job. If a great deal of expensive material can be ruined in a short time, the instructor might want to check back in ten minutes. If little real damage can be done, she might want to leave the learner on her own for a much longer time.

As the learner progresses, these periods on her own lengthen, and actual instruction becomes less and less. Finally, the instructor goes back to her regular work and turns the learner over to the foreman of the department for an occasional further check.

Experience shows that most learners progress well for about four weeks on sewing operations, then their progress levels off for three or four weeks, and then they show further advancement in earnings week by week up to their natural earning power.

In order to shorten this leveling off "plateau," the instructors should be called back on the fourth or fifth week to check the method being used. Bad habits may have developed. Any needed instruction should be given.

From our experience, we do not find that it makes too much difference whether the job the learner is given is fairly difficult or relatively easy. She must, however, be kept on her first job until she has "made her rate" or proves to herself that she has the ability to do this type of work. Once this goal has been reached, she has confidence in herself and she can be retrained on other jobs. It is true that her earnings will drop but she will quickly recover.

If you change this same girl to other work before she has gained the necessary confidence by making her rate, the chances are very great that she may never reach her potential. In fact in too many instances, she becomes discouraged and quits. Try, therefore, to pick jobs for sewing machine learners where you know that there are ten or twelve weeks of steady work.

Training is becoming recognized, more and more, as a production tool to help overcome the day-to-day problems that every company is plagued with. It is a long-term practical plan to help produce greater quantities of quality products in less time, by making the best use of manpower, machines, and material.

Training is not a shot in the arm, to be taken and forgotten. It is a day-to-day proposition to be used on the job. If it isn't, the money spent on training is wasted.

## Throw-out rods *(from page 139)*

tolerance and continued trouble-free operation is not assured.

We have engaged in lengthy experimentation with these parts and have found that by simply cutting off the lower bend of the widening pick shank throw-out rod and welding a piece of hardened steel of the same diameter to form a "T" on the existing rod, that additional advantages are obtained.

One of the advantages is that the additional length of the crossbar prevents the widening pick from getting behind the throw-out rod shank (see illustration, drawing B).

Another advantage is additional flexibility in that the converted throw-out rod does not have to be set to such close tolerances as those which do not have the crossbar.

A third and important advantage is that the converted throw-out rods can be used either on the front or rear widening picks. This eliminates the need to stock rods for the rear pick and also for the front pick.

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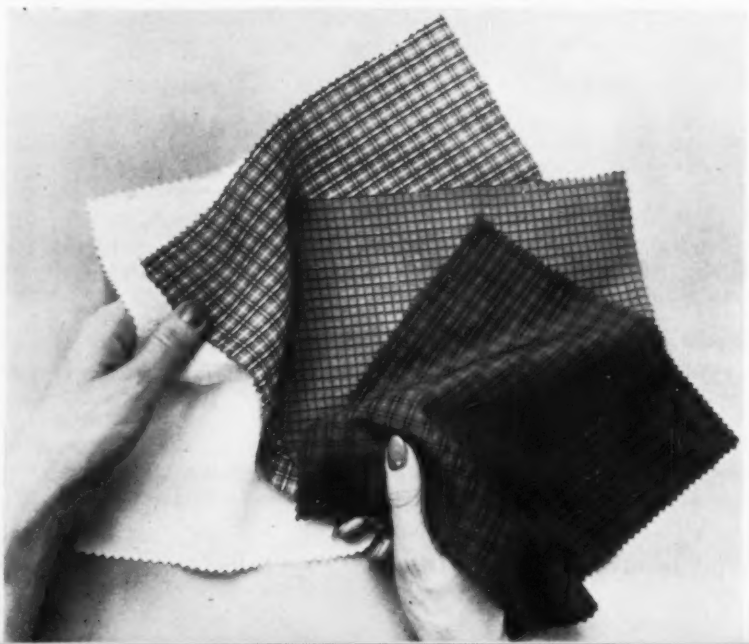
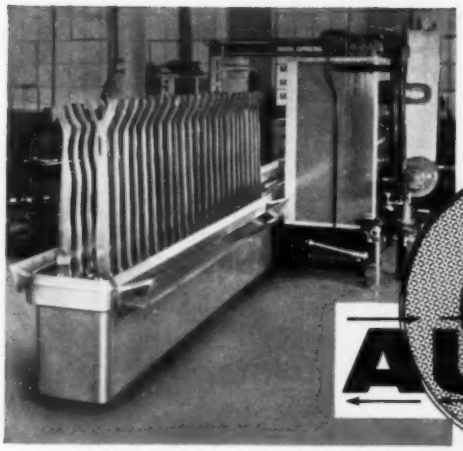
Cross dyeing of cloth containing Arnel yarn has required the development of these entirely new techniques, according to Dr. Reiner G.

*(Continued on page 199)*



Techniques developed by Celanese Corp. make it possible, using a single dye bath, to produce unlimited designs and colors from the same piece of Arnel-content grey or unfinished fabric (bottom).



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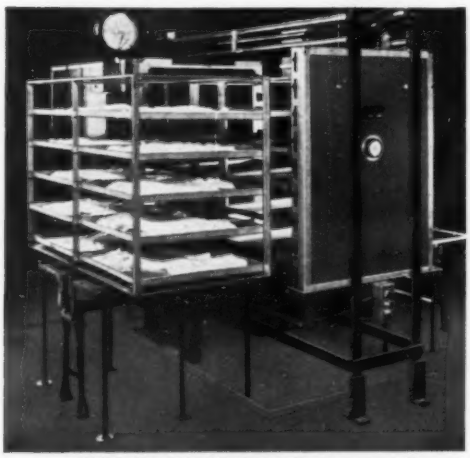

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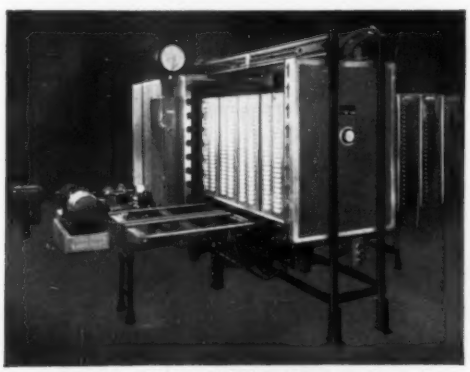

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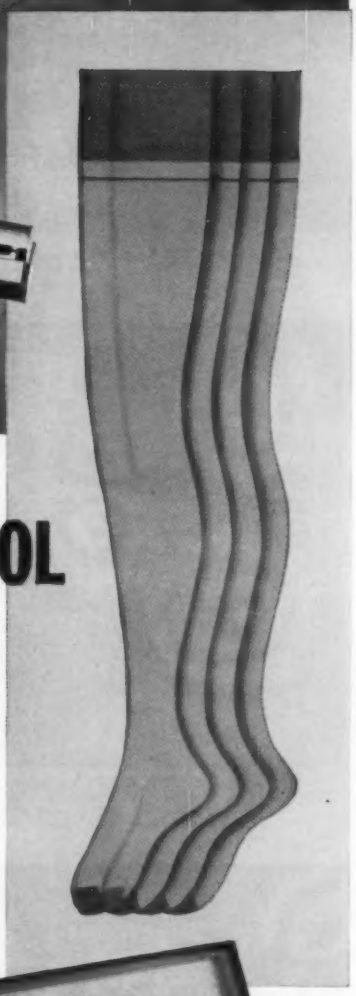
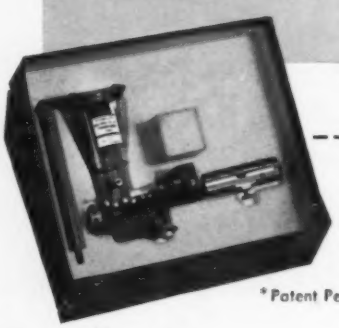
- Adaptable to *all* makes of Seamless Knitting Machines
- Maintains s-t-r-e-t-c-h specifications



ONLY FIDELITY GIVES YOU LENGTH CONTROL *PLUS* YARN TENSIONING *PLUS* COMPENSATING—at a fraction of the *cost* for other length control devices *alone!* Mail this coupon for details *today.*



I want to know more about the Fidelity Yarn Tensioner and Compensator.*

☐ Send additional technical information

☐ Have Fidelity representative call ☐ My purchase order is enclosed

Name _____ Title _____

Company _____

Address _____

*Patent Pending

*Designers and Builders of Intricate, Automatic Precision Machines*

SINCE 1911

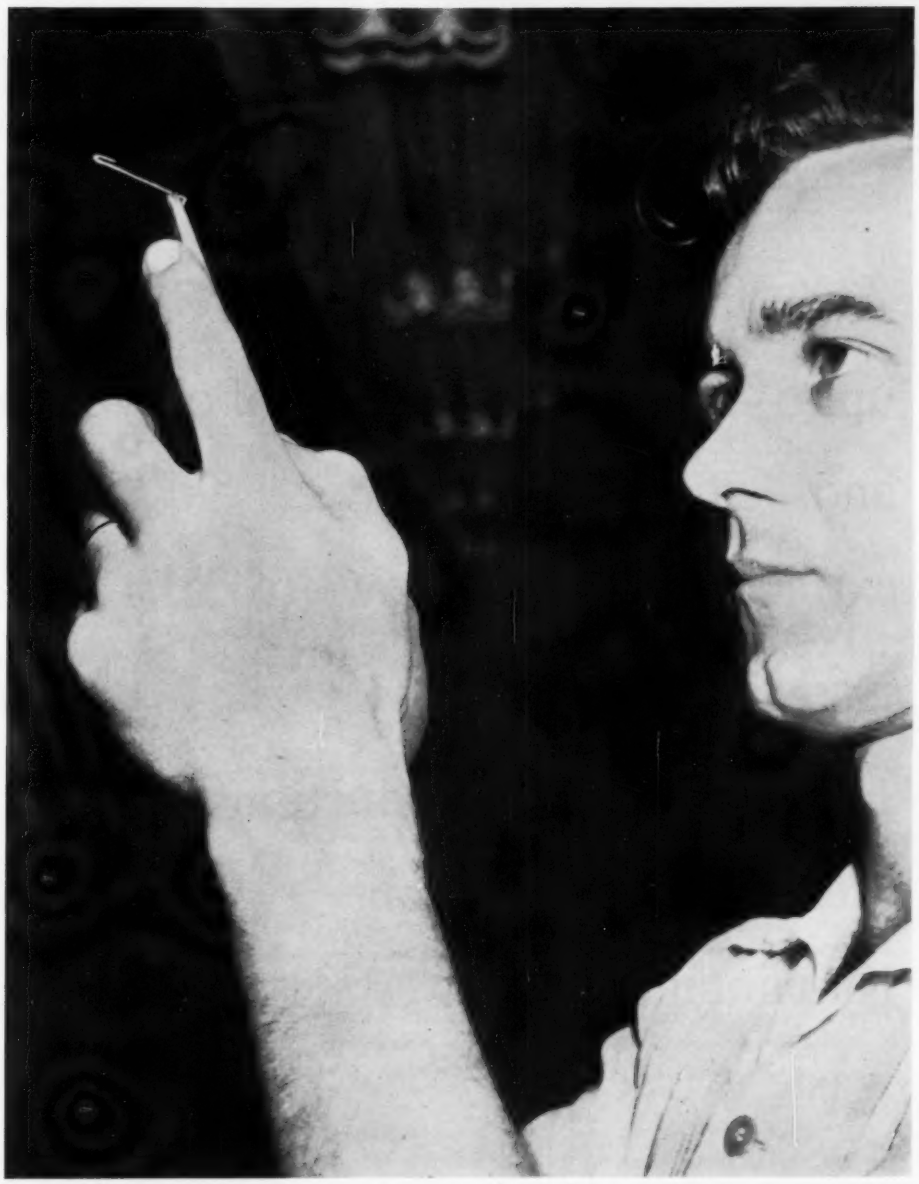
## FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 11 BROADWAY, NEW YORK 4, N.Y.

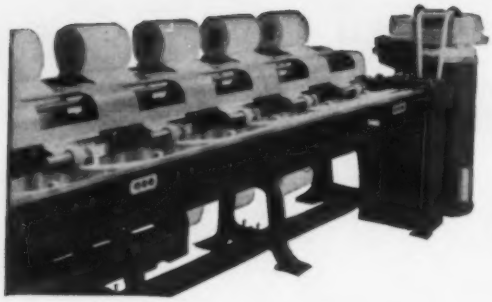
SOUTHERN REPRESENTATIVE: C. S. BRANNOCK, P.O. BOX 763, MT. AIRY, NORTH CAROLINA

# Knitter Hints No. 47



DO straighten your needles before they are put on the machine

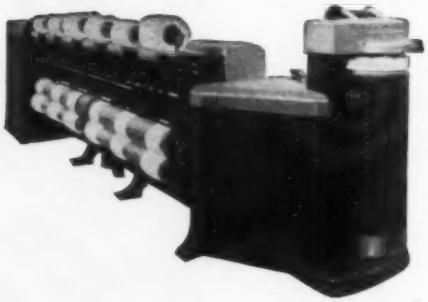
DON'T try to straighten needles after they are installed; be sure that only trained operatives are allowed to work on them



the **"HARTFORD"** high production comber.

A six-head machine capable of productions of up to 44 lb./hr. with speeds of only 116 nips/min. and efficiencies of over 90% with waste extraction from 6% low—to 25% high.

Highest comber production per unit of floor area is achieved. Quality is maintained at lower waste extraction.



**ATKINSON, HASERICK & CO., INC.**
ENGINEERS & AGENTS FOR THE WORLD'S LEADING TEXTILE MACHINERY
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OLDHAM, ENGLAND
MARKETING THE TEXTILE MACHINERY MADE IN THE WORKS OF PLATT BROTHERS & CO. LTD.
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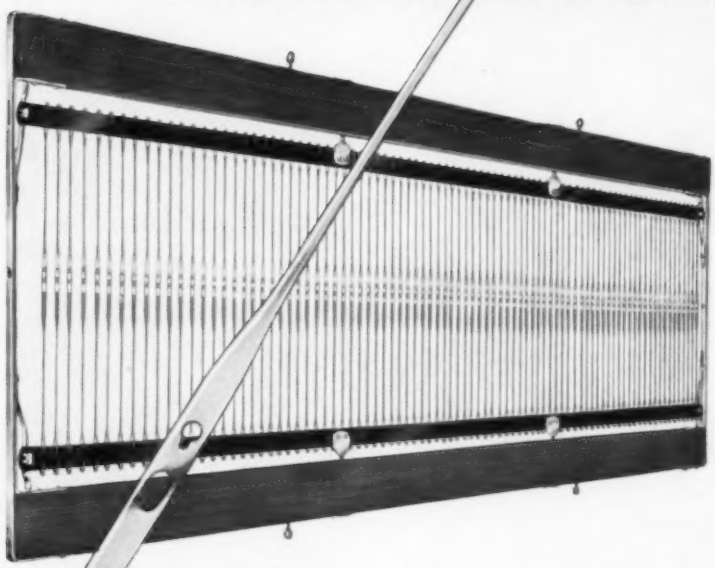
# CHANGE to..... Stehedco
# DRAWTEX HARNESS
## FOR TOP WEAVING EFFICIENCY
### .... Proven for Over 20 Years

TYPE C-2 END BRACE

RIGID ROD HOOK

REMOVABLE ROD HOOK



**Every weaver wants 100% production and no seconds... Stehedco Drawtex Harness brings you closest to that goal.**

Stehedco Drawtex Heddles and Frames have revolutionized the textile industry with their efficient, trouble-free performance, greatly increased production and higher quality goods.

Stehedco Drawtex Heddles are made of the finest quality spring steel, highly polished to handle your most delicate yarns. The exclusive spring effect guarantees quick and easy drawing in by hand or machine.

One heddle size can be used for a much wider range of yarn sizes and constructions, and every heddle is a repair heddle which can be added or removed at any position on the frame.

Stehedco Drawtex Frames are made of select fir lumber, straight and knot-free. The new type C-2 end brace rigidly clamps the heddle rods so that there is no wear on either the brace or the rods. The rods may be removed by slight pressure of a screwdriver, and as easily replaced.

Only Steel Heddle offers you both the rigid rod hook and removable rod hook, giving you a choice to suit your particular needs. They eliminate all warp streaks frequently caused by the bunching of heddles at conventional type rod supports.

Ask our qualified Field Engineers for samples and additional information.

Stehedco
STEEL HEDDLE MFG. CO.
PHILADELPHIA 32, PA.
SOUTHERN SHUTTLE DIV.
GREENVILLE, S.C.
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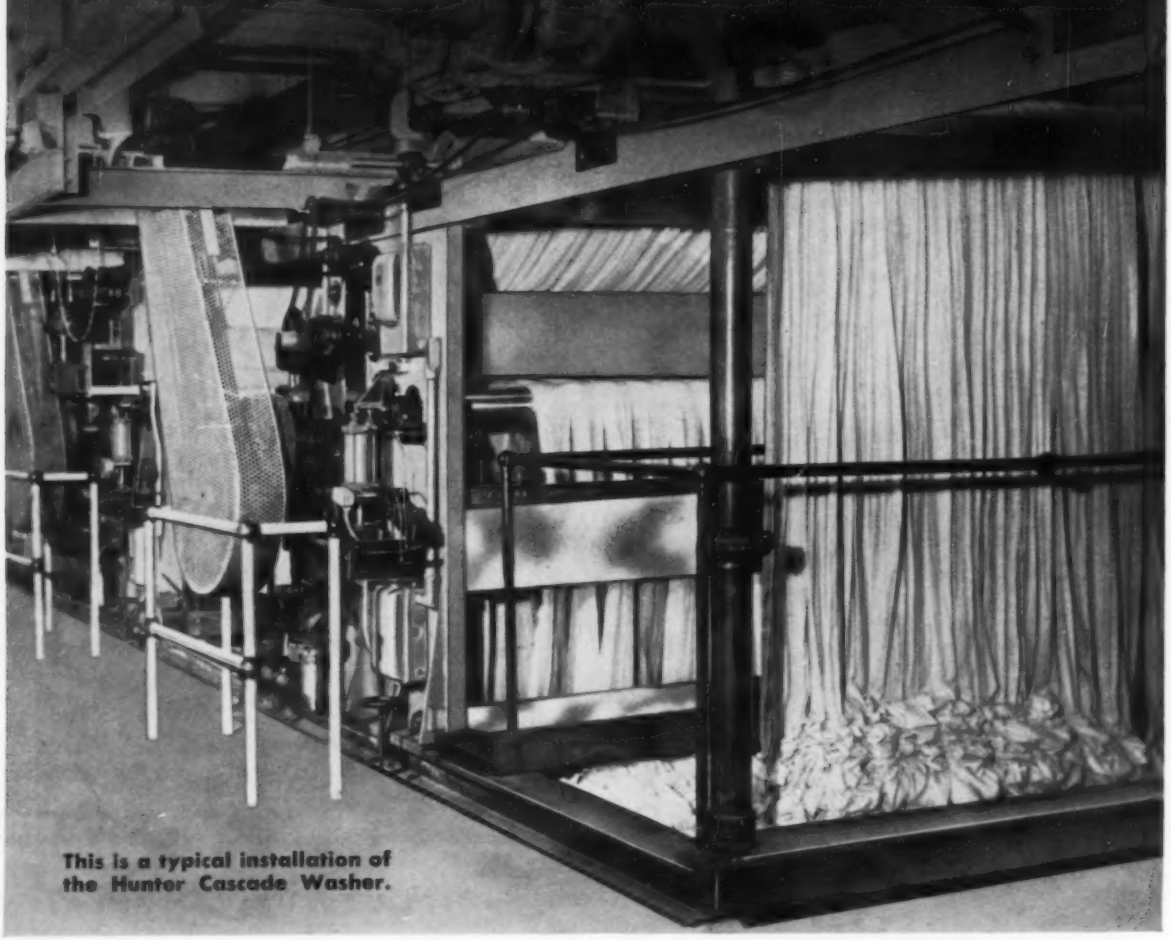
F-5716

**OTHER PLANTS AND OFFICES: GRANBY, QUEBEC, CANADA • LAWRENCE, MASS. • GREENSBORO, N.C. ATLANTA, GA. • TEXTILE SUPPLY CO., DALLAS, TEXAS • ALBERT R. BREEN, CHICAGO, ILL.**

# THE HUNTER CASCADE PAYS FOR ITSELF WITHIN A YEAR!



This is a typical installation of the Hunter Cascade Washer.

It is possible for the Hunter Cascade Continuous Washer to give you such remarkable savings in labor, water, floor space, and capital investment that it will pay for itself within a year. Consider these savings:

**LABOR** — The Hunter Cascade Washer can be operated by two men per shift at speeds up to 60 yards per minute.

**WATER** — The Hunter Cascade Washer requires about one-sixth as much water as dolly washers. You save on water, on steam to heat it, on power to pump it, and on the necessary softener, soap and alkali for scouring.

**FLOOR SPACE** — The Hunter Cascade saves valuable floor space. In some installations, savings are as high as 50%.

**CAPITAL INVESTMENT** — The Hunter Cascade costs far less than other continuous washers. Because of its low initial cost and outstanding operating savings, *small mills producing less than 500 pieces can now afford continuous washing.*

The Hunter Cascade can pay for itself quickly in your mill. Write today for new Bulletin . . . and get specific details.

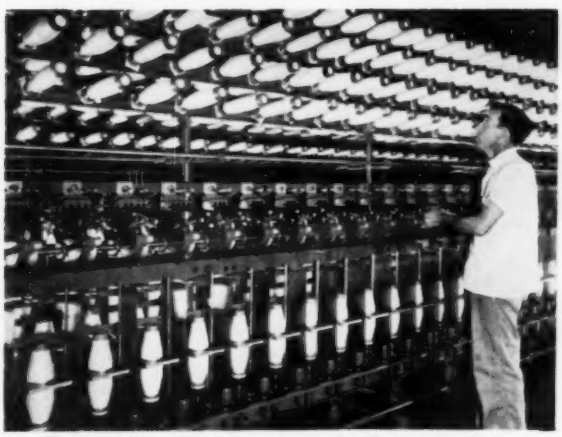
# JAMES HUNTER

JAMES HUNTER MACHINE COMPANY • NORTH ADAMS, MASSACHUSETTS
SOUTHERN SERVICE PLANT: JAMES HUNTER, INCORPORATED • GREENVILLE, S. C.

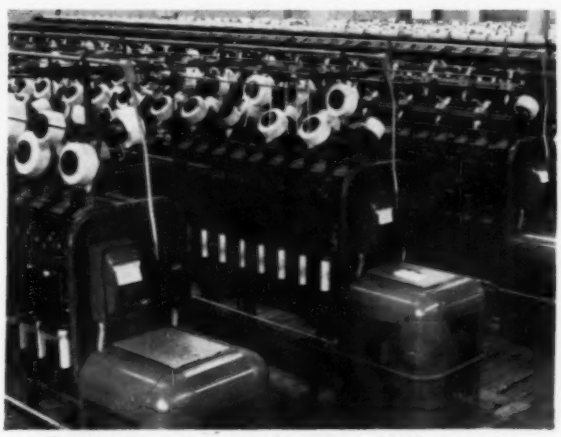
# Leesona® Model 10 puts a wonderful twist on any yarn

Twisting wool and worsted from spinning bobbins onto taper-top, take-up packages, as supply for winding machines.

Worsted, synthetic and metallic yarns from cones are plied together, twisted and taken up on large packages.



Twisting glass yarn from pirns to double-taper packages which will be used for filling and warping without re-winding.



Twisting Dacron* directly from zero-twist cheeses onto straight wind bobbins for further processing on high speed UNIRAIL® Uptwisters.

The world's best yarns — and all the others too — natural or synthetic — spun or filament can be plied and twisted best on a Leesona Model 10 Ring Twister.

With it you twist single end yarn or combine two to 16 ends, with a twist range of ½ to 55 turns. Automatic stop motion for each end in the ply permits tying knots in singles.

Here's the most versatile of twisting machines ready for any kind of package delivery — cones, cheeses, cakes, pirns, spools, bobbins or tubes. Produces straight wind, taper-top or double tapered take-up packages (filling or warp wind).

For more facts and figures write for Leesona Model 10 Ring Twister Bulletin 10-A.

*Dacron is a DuPont registered trademark.

23.7.6

**UNIVERSAL WINDING COMPANY**

P. O. BOX 1605, PROVIDENCE 1, R. I.

*Sales Offices:* Boston • Philadelphia • Charlotte • Atlanta • Los Angeles
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*Agents in every principal textile center throughout the world*

Fabricated and installed at Lanett Bleachery and Dye Works, Lanett, Alabama by Sims Metal Works.

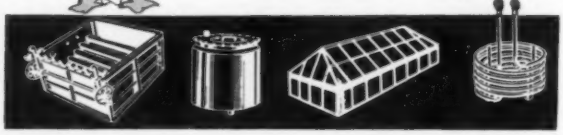
# PROVEN SUPERIOR

In actual day to day operation where the real worth of machinery is tested, Sims new Stainless Steel 75 psi reversed dished head 44 Dry Cans are proven superior. They require less horsepower . . . are easier on bearings . . . and save floor space with no loss in drying surface. And, *exclusive* with Sims, this is the only Dryer where the chain drive is on one side of the can, while the steam fittings are on the other side . . . permitting maintenance of the drive without time lost waiting for steam pipes to cool.

Furnished Teflon-coated if desired.

**FOR ECONOMY AND QUALITY** Our modern and progressive metal-working shops, our skilled craftsmen, our know how—these are guarantees of quality. For custom tailoring of stainless steel, call, wire, or write *now*.

**Sims**
**METAL WORKS**
**WEST POINT, GEORGIA**



FABRICATORS SINCE 1928

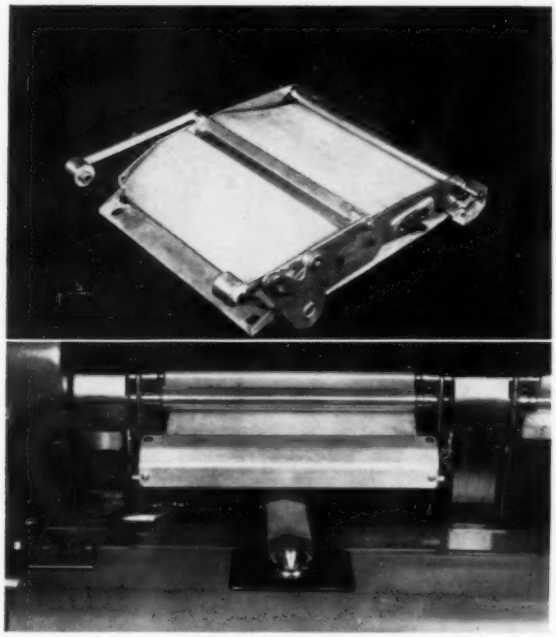
# NEW PRODUCT PARADE

**Machines and Equipment . . . Supplies and Services . . . Dyes and Chemicals . . . Books**

*Please note: Claims made in all of these announcements of new developments are of necessity based upon information furnished by the respective suppliers.—The Editors.*



## Drawing underclearer minimizes picking



The top view shows the underside of the clearer. The bottom view illustrates its appearance as it is mounted in working position.

A self-cleaning underclearer for drawing frames wipes fly, lint, dust, etc., from the bottom rolls with an endless cloth apron. The waste thus collected is removed from the apron by an oscillating stripping comb to prevent the build up between rolls which often reintroduced the waste to the stock being drafted. The comb collects the fiber in a loose mass which is easily picked off by the operator as full cans are doffed.

The unit consists of a steel framework, supporting guide and press rolls, a wire-covered driving roll, and the oscillating stripping comb.

*Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.*

Do you want more data? Write ◆ or use card on page 171; list C-101

## A motor for space-cramped applications

An electric motor that is as much as 60% shorter than standard motors of the same rating is designed for use on machine tools, roof-ventilating fans, and many other similar space-limited applications. The pancake motor is a flange type of conventional air-gap design which achieves its short length without any reduction in motor performance.

For normal operating conditions it is built in an open drip-proof enclosure. Where dirt, filings, corrosive chemicals, coolants, or other contaminants are present, it can be furnished in an enclosed construction.

The motor is available in ratings from 1 to 15 hp at 1800, 1200, and 900 rpm, and for vertical or horizontal mounting.

*The Louis Allis Co., Dept. P, 427 E. Stewart St., Milwaukee 1, Wis.*

Do you want more data? Write ◆ or use card on page 171; list C-102

## Detwists cloth at speeds up to 130 ypm

The B.D.A. Auto Scutch, made by G. Durrant & Sons, Ltd., Stockport, England, handles all types of fabrics (except knitted) which are to be opened from the rope form, plaited down, or fed directly to a mangle or suction slot. The system does not use a turntable. Speeds: from 10 to 130 yards per minute.

The cloth is taken from truck or extractor and passed through a twist detector some 20 to 30 feet above the floor, then downward through a detwister. Controls prevent overrunning of the detwister which continually throws back an accumulation of twist. The machine can be built for areas of restricted head room.

*R. J. Dealey & Sons, 263 Summer St., Boston 10, Mass.*

Do you want more data? Write ◆ or use card on page 171; list C-103

## Midget centralized lubrication system

Accumite is a low pressure, positive displacement type of miniature lubrication system for use on machine tools, packaging, labeling, textile, and other similar types of machinery which have numerous bearings and limited installation space. The systems are specifically designed to efficiently lubricate industrial vehicles and machinery which were previously not considered for centralized systems for economical or structural reasons. Among these are: Production machines, machines with many bearings, "bottleneck" machines, and "production dependent" vehicles.

The heart of the system is a miniature metering valve (slightly larger than a lubrication fitting) which services each bearing individually. The valve delivers a specified amount of refinery-clean lubricant to each bearing connected in the system, regardless of bearing clearance or distance of the bearing from the pump, and is specifically designed to eliminate lubricant drainage from the system when the machine is idle.

The system can handle a wide range of lubricants of the lighter grades, and will handle many applications where

*Moropol 700*

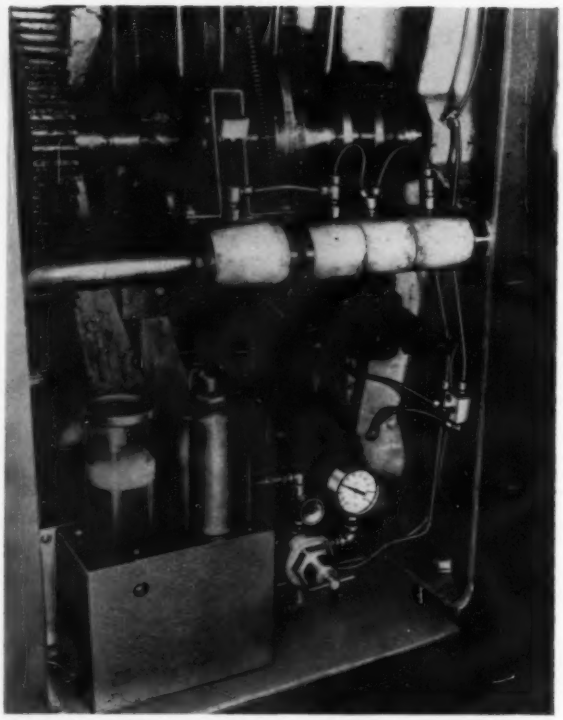
**The Finest Polyethylene Emulsion on the Market**

**for crush resistants**
**wash and wear formulations**
**shrink control finishes**

Moropol 700 is non-yellowing—increases tear and tensile strength and seam efficiency in resin treated fabrics—improves crease recovery and hand. Moropol 700 is 100% effective—contains no waxes or loading agents.

Write today for full information and samples.

MORETEX *Chemical Products*, INC.
314 W. Henry St., Spartanburg, S.C.
Established 1908 Manufacturing Chemists



A typical use of the Accumite system is lubrication of cams and gears of processing machines.

experience has shown that frequent applications of lighter lubricants will replace infrequent applications of heavy grease. The various types of pumps deliver enough lubricant to serve from 40 to 200 bearings on one stroke.

*Alemite Div., Stewart-Warner Corp., 1826 Diversey Pkwy., Chicago 14, Ill.*

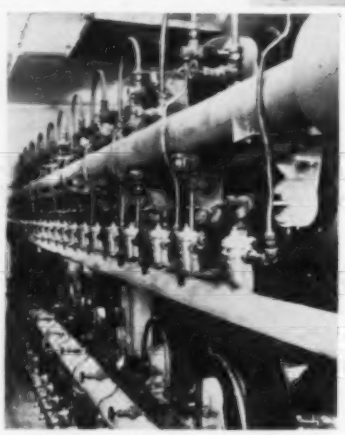
Do you want more data? Write ◆ or use card on page 171; list C-104

**ROTHERM REVOLVING JOINTS REQUIRE NO FLEXIBLE HOSE**

LOW TURNING TORQUE

FULL OPENING

WRITE FOR NEW LOW PRICES



NOTICE

NO FLEXIBLE HOSE USED ON THIS DRYER

TYPE YX JOINTS TO 1" IPS ARE ALL BRONZE

*WRITE FOR EXPANSION JOINT CATALOG*

**ROTHERM ENGINEERING CO., INC.**
7280 W. Devon Ave.,
Chicago 31, Illinois

## Drawing sliver pan helps reduce variation

A sliver pan is offered as an aid to reducing sliver variation. The pan is so attached that the distance from the nip of the back rolls to the pan remains the same regardless of changes in roll settings.

*Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.*

Do you want more data? Write ◆ or use card on page 171; list C-105

## Adapters extend choice of yarn carriers

A positive-drive spindle adapter has been developed for use primarily on existing spindles in winding and twisting to permit the use of a wider range of yarn carriers.

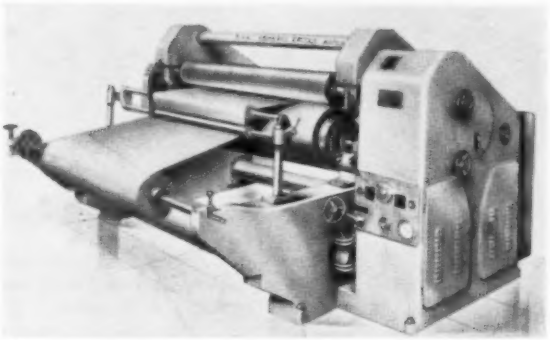
The adapter is custom built to fit the spindle and to the inside diameter of almost any type of yarn carrier a mill prefers to use. The feature is a spring-lock mechanism which engages the inside diameter of the carrier in such a way that positive high speed drive is assured without slippage. The spring will operate equally well in either direction of rotation, and is designed to permit easy installation or removal whenever desired. The top unit centers the yarn carrier, which cannot ride up on the spin-

dle because of the gripping force of the adapter. The bottom unit is designed to permit self-centering of the yarn carrier and to improve the condition of balance.

*Engineered Plastics, Inc., Gibsonville, N. C.*

Do you want more data? Write ◂ or use card on page 171; list C-106

## A two-bowl pneumatic embossing calender



A two-bowl pneumatic embossing calender made by Comerio Ercole, Busto Arsizio, Italy, is available through a supplier in the United States. The embossing rolls are of steel: the top one is unengraved, the bottom one is covered with wool-paper of a type to resist high temperatures. The top roll is hollow for steam heating. Both rolls are easily removed.

Pneumatic loading is accomplished through double levers, and the added force is readily absorbed through the bearing blocks which are built to withstand the high temperatures and the pressures.

The drive is through an electric motor and Speed Variator, which is housed along with the gears and air compressor in a control cabinet.

*Elmo International, 7 Church St., Paterson, N. J.*

Do you want more data? Write ◂ or use card on page 171; list C-107

## Synthetics don't freeze to this picker lap pin

A nontapered picker lap roll is available for use with synthetics. The roll fits into a paper tube, and is easily removed at the doff. The rolls are made of seamless steel tubing, and are hardened and ground.

*Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.*

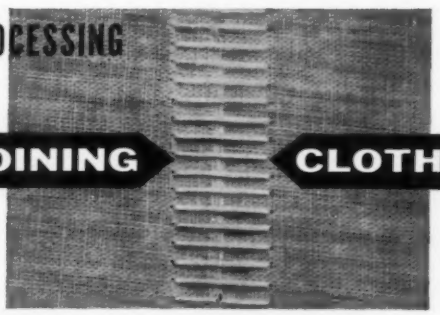
Do you want more data? Write ◂ or use card on page 171; list C-108

## Produces twistless rubber yarns

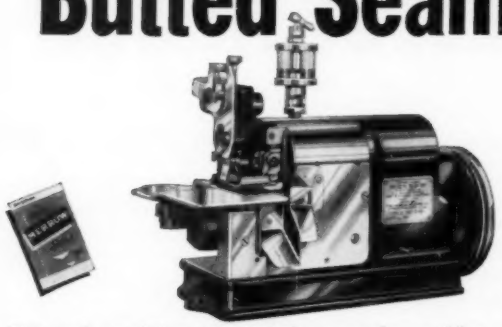
The Reinshagen High-Speed Rubber-Yarn Covering Machine Type GKU, made in West Germany, covers rubber threads up to the finest counts, and can be easily adjusted to give the desired degree of package firmness. The spindles are capable of speeds up to 16000 rpm without a wire traveler, and up to 12000 rpm with a wire traveler. By means of a speed variator on the spindle shafts, the


for DYEING • BLEACHING • FINISHING • PROCESSING

HERE'S A BETTER METHOD OF JOINING CLOTH



MERROW Butted Seams



Joining piece goods end-to-end with a Merrow Butted Seam improves processing and saves material because:

- Material moves through continuously, speeding production.
- Seam opens *flat* under tension of processing.
- Lack of bulk at seam simplifies calendering, shearing, napping, printing, coating, filling, etc.
- Seam "gives" with material.

Machines may be used in conjunction with several different types of cloth handling equipment and are also available for joining *knitted* fabric for processing.

Write today outlining your particular processing problem. We'll be glad to make recommendations and submit sample stitches on your own material.

TRADE MARK REG

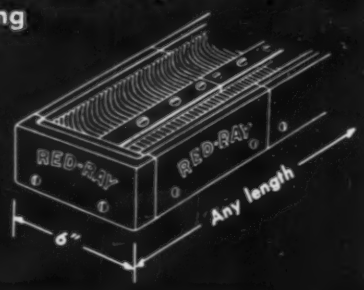
The MERROW MACHINE COMPANY

2806 LAUREL ST. • HARTFORD, CONN. • U.S.A.

# RED-RAY
## Infra-Red Gas Burners

- Preheating
- Nylon Setting
- Tenter Frame Drying
- Setting Resins—Pigment Dyes
- Singeing

High Capacity
Compact
Low Cost

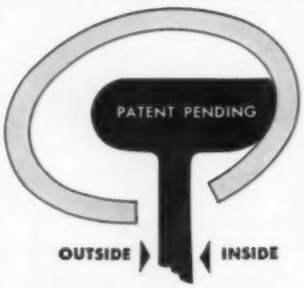



Write for further information

RED-RAY MANUFACTURING CO., INC.
318 Cliff Lane Cliffside Park, N. J.
Tel: WHitney 3-1000



*Announcing . . . the brand NEW*
# "ANTI-WEDGE"
FLANGE RING
**Permits MAXIMUM advantage from elliptical travelers**



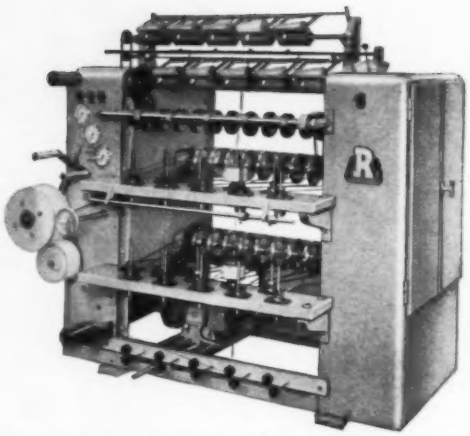

- **TOP IS FLAT.**
- **WEB IS OFFSET.**
- **INNER FLANGE IS CONTOURED TO TRAVELER, PROVIDING NEW CONCEPT OF BEARING AREA.**

**Results:** Prevents wedging or trapping of yarn. Travelers run cooler, in accurately controlled orbit.
**Thereby:** for the first time, permits elliptical travelers to be used to MAXIMUM advantage.

***Request Literature and Prices***

**WHITINSVILLE (MASS.) SPINNING RING CO.**
*Makers of Spinning and Twister Rings since 1873*
DIAMOND FINISH

Rep. for the Carolinas & Va.: W. K. SHIRLEY, P.O. Box 406, Belmont, N. C.
For Ala., Ga., & Tenn.: P. C. EVERETT, 369 Meadowbrook Dr. NE, Atlanta

The Reinshagen high-speed rubber-yarn covering machine.

machine produces absolutely twistless rubber threads.

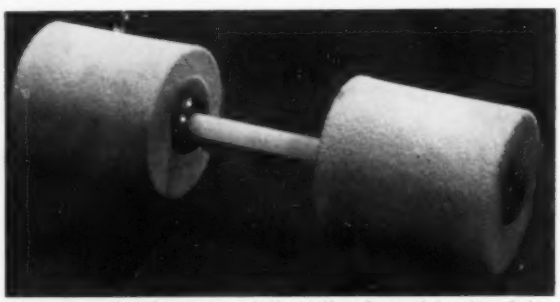
Optic and acoustic signals indicate any irregularity of tension; and the machine is stopped automatically in case of excessive or inadequate warp tension. Stopping does not introduce poor wrapping points.

*R. & J. Textile Corp., 45 Carlton Ave., Carlton Hill, N. J.*

**Do you want more data? Write ☁ or use card on page 171; list C-109**

## Sponge rubber clearer cuts picking time

A sponge rubber clearer is available for use on Gwaltney spinning frames with revolving type front roll clearers. The rubber is secured to metal shafts, elimi-



nating wooden bosses, and is easily cleaned by hand (no spinning hooks, wire brushes, etc., needed) in two or three seconds. The clearers are particularly suitable for operations requiring frequent clearer picking.

*Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.*

**Do you want more data? Write ☁ or use card on page 171; list C-110**

## Coilers made to stay cleaner, run lighter

Card and comber coilers are available on new equipment and for changeovers. Made to accommodate 14", 15", 16", and 18" cans of both 36" and 42" heights (the comber installation is not made for 18" cans), the card and comber coilers are similar in design.

Some features of the coilers, built to run with low friction in all parts, include three-roller support for the coiler gear (the rollers, equipped with nonmetallic tires, run in machined grooves in the coiler gear to provide accurate positioning as well as support); epicyclic gearing and chain drive in the turntable; over-center coiling; and

a nylon gear for driving the coiler gear. The coiler requires no external lubrication.

*Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.*

Do you want more data? Write ◆ or use card on page 171; list C-111

## Reduces pull threads at hosiery boarding

Formex Finisher, a hosiery board finisher, contains a lubricant and release agent which imparts a lasting, glass-like surface to the boards to eliminate once-per-shift cleaning. The finisher is applied after cleaning, and for that purpose a companion product is offered which removes finish, size, residue, etc. Called Formex Cleaner, the agent is applied with a soft cloth to cold or warm boards.

*Reading Testing Laboratories, Inc., Reading, Pa.*

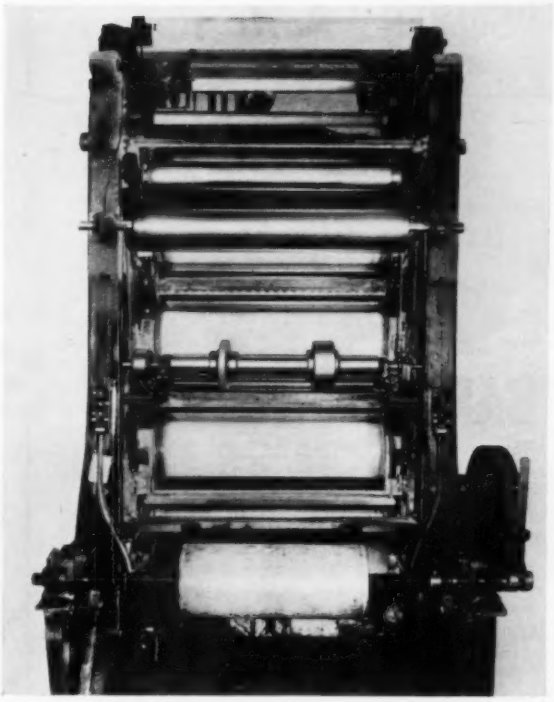
Do you want more data? Write ◆ or use card on page 171; list C-112

## Equipment for in-place roll grinding

The Roy portable traverse roll grinder can be used to redress rolls without removing them from their regular point of use. This permits bearing mounts to remain undisturbed. Applications include redressing rolls of rubber, felt, rigid plastics, thermosetting plastics, nonferrous alloys, cast iron, and steel. Rolls of any diameter, in lengths up to 100", can be reground to restore original efficiency.

*B. S. Roy & Son Co., 801 Southbridge St., Worcester, Mass.*

Do you want more data? Write ◆ or use card on page 171; list C-113



The Roy portable traverse roll grinder, center (near the switch boxes) above, permits in-place grinding of a variety of rolls. This leaves the bearings undisturbed and reduces the downtime.


# Announcing the MOST POWERFUL LOW-COST textile magnet you can use!

**New, NON-ELECTRIC SPIKED APRON MAGNET from Eriez improves product quality, reduces direct labor and maintenance costs, increases plant safety.**

Here's *positive protection* at a price every budget can stand! Designed and produced by Eriez—*leader* in magnetic equipment for the textile industry—this new Spiked Apron Magnet will protect carding and garneting equipment from damage by tramp iron; prevent fires, machinery damage and costly down time. And it's priced so low you can't afford to be without it!

Nine out of ten mills specify "ERIEZ" magnetic separators when they order—and with good reason. No other manufacturer has the years of magnetic experience, the know-how or the skilled field and laboratory staffs that Eriez has. No other manufacturer has solved as many magnetic problems for the industry. Eriez Spiked Apron Magnets are available direct or through your original equipment manufacturer—and there's always an Eriez sales engineer nearby to serve your needs.

**CHECK THESE FEATURES:**

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**ERIEZ** Try one of these dependable magnets on a FREE 30-DAY TRIAL No obligation.

MODEL D

**ONLY $224** for this big, 36" Spiked Apron Magnet.

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Eriez Mfg. Co.,
72 C Magnet Drive, Erie, Pa.

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( ) Please mail more information on the Model D magnet
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*The inside dimension of our feeder is*_____

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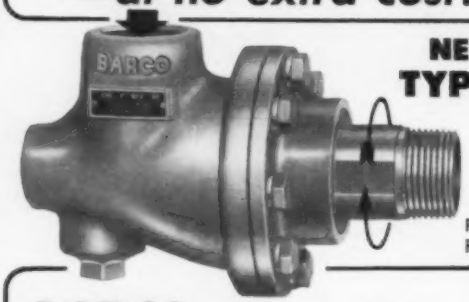


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**RESISTS SEAL RING BREAKAGE**—The spherical seal ring is under compression, not *tension*, loading. Self-adjusting for wear.

**WIDE SPACED BEARINGS**—Two, instead of one . . . increased bearing area. No lubrication required. Lowest friction.

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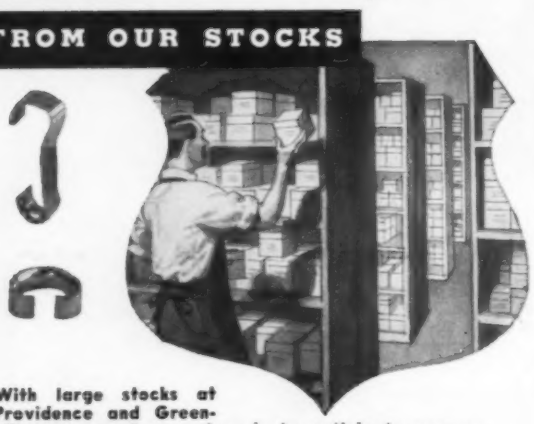

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## Take this voice recorder along with you

Designed exclusively to meet a vital communication need — convenient and on-the-spot communications — the Dictet recorder is made light (two pounds, eleven ounces) for carrying on the person. The unit is battery-powered, magazine loaded, and records on tapes for later transcription through the Dictet Typer, a companion product.

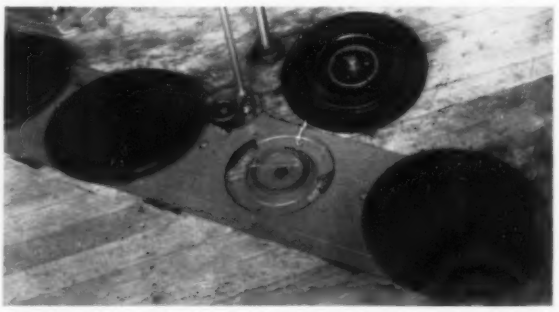
Capable of recording voices 10' to 12' from the machine, or even whispers, it is an effective instrument for recording interviews, reports, ideas, information, on-the-spot observations, etc.

*Dictaphone Corp., 420 Lexington Ave., New York 17, N. Y.*

**Do you want more data? Write ◂ or use card on page 171; list C-114**

## Changes drawing to large cans

A coiler changeover for drawing is offered in either 14" or 15" can sizes to fit either 16" or 18" gauge frames (the 15" can is declared the maximum practical size for a frame of 16" gauge). The changeover includes coiler gear, coiler



gear plate, and turntable unit. Coilers may be either 36" or 42" high.

The front portion of the coiler cover can be raised for inspection, removal of chokes, etc. The coiler gear itself is of a new design. The can table, supported by a one-piece casting, is designed to utilize a machined ring on which runs a similar ring on the turntable gear. The ring offers a wider and longer-wearing load support than was previously given.

*Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.*

**Do you want more data? Write ◂ or use card on page 171; list C-115**

## Yarn balance gives counts in two systems

Resulting from a recommendation of Technical Committee 38 of the International Organization for Standardization of Textiles that the tex system of yarn counts be adopted (1 tex = 1 gram/1000 meters), a direct-reading yarn numbering balance has been developed by a German firm, Karl Frank, G.m.b.H., Weinheim-Birkenau. The

scale is fitted with two measuring ranges, one for tex counts, the other for metric counts.

*Testing Machines, Inc., 123 W. 64th St., New York 23, N. Y.*

Do you want more data? Write or use card on page 171; list C-116

## Dyes and chemicals

**Three gold powders** are available for roller process textile printing. In addition, nine powders suitable for silk screen application consist of three shades of gold and six aniline-dyed powders in shades of blue, green, violet and wine red. The powders are non-tarnishing and extra brilliant. A staff of technical personnel will also offer solutions to problems in wetting, suspension, tarnishing, adhesion, etc. The powders are manufactured by Venus Bronze and Aluminumpulver of Nurnberg, Germany.

*Hummel Chemical Company, 90 West Street, New York, N. Y.*

Do you want more data? Write or use card on page 171; list C-117

**A 100% liquid cationic softener,** Hartex Softener DW, having ready solubility and excellent resistance to yellowing under high heat, contains no inert ingredients and exhibits remarkable economy in producing soft pliable hands on all types of cellulosic and synthetic fibers while improving the sewability of the fabric. It can readily be applied by exhaustion from the usual dyeing equipment. Compatible with thermosetting resins and catalysts, it can be applied in the resin-treating bath to give desirable hand on crease-resistant, schreinered, glazed and embossed finishes.

*Hart Products Corp., 1440 Broadway, New York, N. Y.*

Do you want more data? Write or use card on page 171; list C-118

**A second blue dyestuff for Orlon** and other acrylic fibers (designated as Maxilon Blue RLA) is somewhat redder in shade than Maxilon Blue GLA (previously announced) when compared in natural light, but is much redder in artificial light. It has exceptional light fastness and good buildup properties, and it is recommended that the color be applied with the use of an anionic retarding agent.

*Geigy Dyestuffs Division, Geigy Chemical Corp., Ardsley, N. Y.*

Do you want more data? Write or use card on page 171; list C-119

**An optical brightening agent** for polyamide fibers, Leucophor PA, gives a brilliant white which has good light fastness, very good wash fastness, and good resistance to heat. White nylon fabrics so treated do not yellow after washing. Polyamide fibers brightened with this agent may be fixed or pleated at the high temperatures normal to this process, without danger of the cloth yellowing.

*Sandoz, Inc., 61-63 Van Dam Street, New York 13, N. Y.*

Do you want more data? Write or use card on page 171; list C-120

**A direct dye,** Lumicrease/Cuprofix Grey 3 LR Pat., has exceptional fastness to light, water, and perspiration. The dyestuff possesses good solubility, and is therefore par-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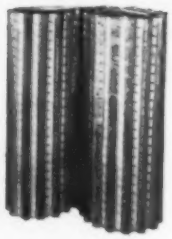
ALL TYPES OF PICKER APRONS, BEATER LAGS–

APRON SLATS, COMB BLADES,



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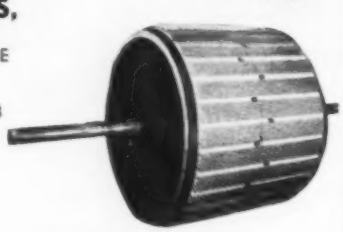

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ticularly well suited for application in pad dyeing. Its fastness to light and satisfactory cotton and rayon union recommend it for automotive and decorative fabric applications.

*Sandoz, Inc., 61-63 Van Dam Street, New York 13, N. Y.*

Do you want more data? Write ◂ or use card on page 171; list C-121

## Equipment Briefs

**A flex abrasion instrument,** the CSI Stoll Flex Tester, has been redesigned. The reciprocating flex block and the balanced head are now of the same dimensions as the CSI Stoll Quartermaster Universal Wear Tester. The instrument provides for flex abrasion, bending, roll and fold testing, and may be run wet or dry. Model CS-39S is furnished with a tank emersion heater.

*Custom Scientific Instruments, Inc., 541 Devon St., Kearny, N. J.*

Do you want more data? Write supplier or use card on page 171; List C-201

**Weighing and handling** are done in one operation with the MMM Load Scales—no lifting materials, moving them to a stationary scale, setting them down, recording their weights, and then lifting again. Scale accuracy is within 0.002 per cent, based on full scale reading, and the unit is sensitive to weight changes of less than one half of one division.

*Manning, Maxwell & Moore, Inc., Shaw-Box Crane & Hoist Div., Muskegon, Mich.*

Do you want more data? Write supplier or use card on page 171; List C-202

**A compact "S" section sheave** permits wider speed changes and increased horsepower transmitting capacity. The single-groove Vari-Pitch sheave has a range of 5.5" minimum to 120" maximum, uses a belt of 2 1/16" maximum width, and requires no more mounting space than is needed for the smaller "R" section sheave with one groove.

*Allis-Chalmers Mfg. Co., 1054 S. 70th St., Milwaukee 1, Wis.*

Do you want more data? Write supplier or use card on page 171; List C-203

**Step ladders** for business and industry offer added safety for persons working above floor or ground levels. The ladders incorporate spring-mounted casters which retract automatically when the ladders are in use. Handrails are supplied on both six- and seven-step models, and are optional on two- to five-step models. Of all-steel construction, the units are built with base widths ranging from 17½" to 30".

*Ballymore Co., Lincoln & Garfield Aves., West Chester, Pa.*

Do you want more data? Write supplier or use card on page 171; List C-204

**A 40-watt standard cool white fluorescent lamp** offers nine per cent more light with improved maintenance of light over the life of the lamp. A typical factory with

27,000 sq ft of floor space will get a lighting bonus of $500 per year at no additional cost, one-third more than it now costs to replace used lamps over the period.

*General Electric Co., Lamp Division, Nela Park, Cleveland, Ohio.*

Do you want more data? Write supplier or use card on page 171; List C-205

**Factory assembled 18-92 hp boiler-burner units** feature the Kewanee Scottie Jr. boiler and Iron Fireman burners for gas, oil, or combination gas-oil firing. The integrated units are available in 8 sizes of high pressure packages, and 8 sizes of low pressure packages. Automatic forced-draft firing requires only a vent pipe regardless of boiler room location or atmospheric conditions.

*Kewanee Boiler Division of American-Standard, 101 Franklin St., Kewanee, Ill.*

Do you want more data? Write supplier or use card on page 171; List C-206

**Oil and grease spots are removed from fabrics** (including those made of synthetics) with Laurel Spotter AF-2. Having minimum adverse effects on dyeing and finishing operations, it combines with the oil or grease in the spots, and forms an emulsifiable combination which is readily removed in normal scouring and boiling off. Easy to apply, it requires no rubbing.

*Laurel Soap Mfg. Co., Inc., Tioga and Almond Streets, Philadelphia 34, Pa.*

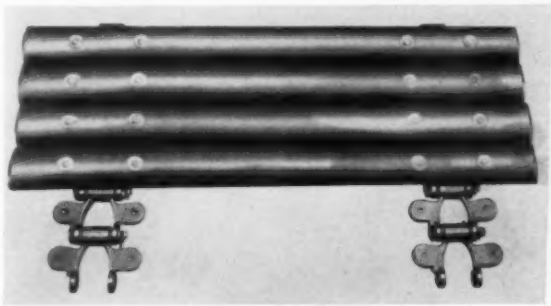
Do you want more data? Write supplier or use card on page 171; List C-207

**A temperature transmitter** for the pneumatic transmission of temperature measurement in ranges from 100 F to 600 F, with spans of 100 and 200 F, is available in an indicating model. The Class II thermal system requires no ambient temperature compensation.

*The Foxboro Co., Foxboro, Mass.*

Do you want more data? Write supplier or use card on page 171; List C-208

**An all-steel chain slat conveyor apron,** suited for long, hard wear, is equipped with forged and heat-treated links,



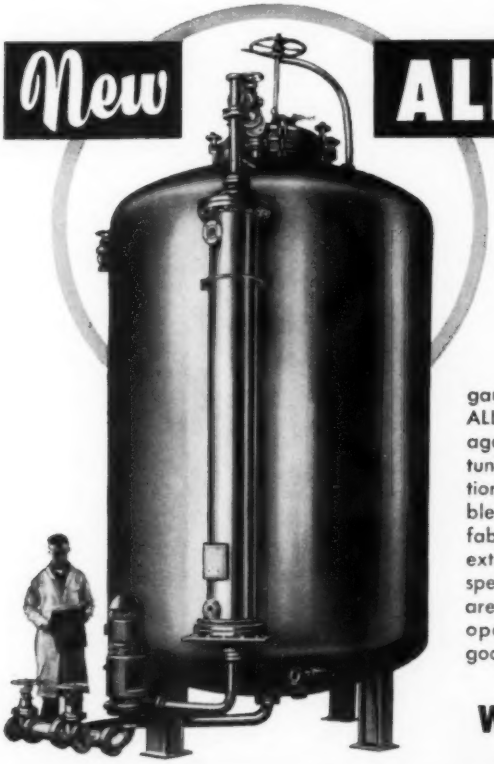
measuring eight slats per foot.

*Robert A. Main & Sons, Inc., 257 Pascack Rd., Paramus, N. J.*

Do you want more data? Write supplier or use card on page 171; List C-209

**A control system** for governing combination hot and chilled water unit ventilators provides precise control for both room and discharge temperatures. Control changeover from heating to cooling is automatic. A strap-on thermostat, mounted in each unit and set to changeover at 65 F, senses whether the supply medium is hot or


New ALLEN Unit Package KIERS



**Unsurpassed for Easy Installation, Trouble-Free Operation and Low-Cost Maintenance**

For boiling or bleaching all types of cotton goods from gauze to heavy twills, these new ALLEN stainless steel "Unit-Package" kiers offer unusual opportunities for more profitable operation to small and medium sized bleacheries and those doing fine fabrics. Large plants, too, find them extremely useful for short runs and special fabrics. In many cases, they are replacing continuous bleaching operations for certain types of goods.

A few of the special features which make these new kiers extremely desirable include:

- **A completely prefabricated unit — pump and heater are integral parts of the kier — for easier installation and maintenance.**
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Write today for circulars giving complete information on this as well as Allen kiers for knit goods and kiers for cotton and cotton batting.

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Model CS-22C

*For measuring:*

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- FLEX ABRASION
- EDGE ABRASION
- PILLING

Reports by leading companies throughout industry have proven that the CSI Stoll Quartermaster Universal Wear Tester is a vital factor in both research and quality control. This multipurpose instrument will measure the resistance to surface, flex and edge abrasion of such materials as woven and knitted fabrics, napped and pile fabrics, hosiery, felt, nonwoven and coated fabrics, yarns, threads, cordage, plastic films, rubber sheeting, leather, paper and many others.

ASTM Designations:
D1175-55T "Test for Abrasion Resistance of Textile Fabrics."
D1379-55T "Test for Abrasion Resistance of Textile Yarns."
D1375-55T "Test for Piling Propensity of Textile Fabrics."

Federal Specifications:
CCC-T-191b Method No. 5300.
CCC-T-191b Method No. 5302.

As our name implies we also welcome the opportunity to work on custom design and manufacture of testing instruments of all types for individual and general needs.

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chilled water, and activates the unit ventilator control system accordingly.

*Barber-Colman Co., 1300 Rock Street, Rockford, Ill.*

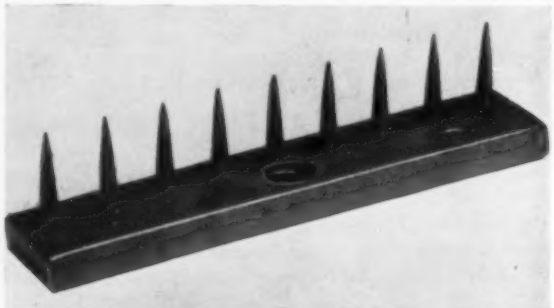
Do you want more data? Write supplier or use card on page 171; List C-210

**Woven labels can be permanently attached** to knitted garments without sewing. Called "No-Sew," the labels can be looped right into a garment while it is being made. Identification is permanent.

*Finlan Woven Label Co., Inc., 10 West 37th Street, New York 18, N. Y.*

Do you want more data? Write supplier or use card on page 171; List C-211

**Teflon-coated brass tenter plates** eliminate the tendency of material to adhere to them, and save many hours of down-time and cleaning labor. The manufacturer of this item also makes all types of pinned tenter plates, lags,



slats and pins used in the processing of most fibers, and specializes in repinning tenter plates, reclothing picker cylinders, and covering all types of rolls with hardwood lags.

*W. H. Bagshaw Co., Inc., 70 Pine Street, Nashua, N. H.*

Do you want more data? Write supplier or use card on page 171; List C-212

**An immersible electric motor,** designed for close-coupling to agitators or pumps in sewage sumps, chemicals, water, and abrasive industrial oils, features leak-

tight construction, neoprene breathers, waterproof cable connection, compact design, and corrosion resistant parts. Available in ratings of ¾ to 40 hp, both single and polyphase.

*The Louis Allis Co., Dept. P, 427 E. Stewart St., Milwaukee 1, Wis.*

Do you want more data? Write supplier or use card on page 171; List C-213

**A natural fatty oil,** Smithol 25, may be used in place of sperm oil, lard oil, olive oil, and other natural fatty oils. It will form a continuous film on metal surfaces for which it has an affinity—aluminum, brass, steel, etc., and its composition can be varied to give specific properties for a particular application. The oil is easily sulfonated.

*Werner G. Smith, Inc., 1730 Train Ave., Cleveland 13, Ohio.*

Do you want more data? Write supplier or use card on page 171; List C-214

**A monofilament yarn,** saran 909, is recommended for awnings and patio covers. Such fabrics are impervious to punishing weather conditions (they will not rot, mildew, or fade) and are not affected by industrial "smog." For commercial installations, the fabrics can be coated to offer complete protection against rain and snow.

*The Dow Chemical Co., 45 Rockefeller Plaza, New York 20, N. Y.*

Do you want more data? Write supplier or use card on page 171; List C-215

**The printing of weight data** in large, clear figures (anywhere on office forms or tickets up to 8½" x 11" in size) is done by the Printweigh 400 series scales. These scales

have a "memory," and will record at the scale or transmit a weight figure to a remote location even after the load is removed from the platform. Another load can be placed on the platform without affecting the stored data.

*Toledo Scale, division of Toledo Scale Corp., Toledo 13, Ohio.*

Do you want more data? Write supplier or use card on page 171; List C-216

**A plastic-coated packing** adapts valves for use over a 450 F temperature range without readjustment. Made of Teflon-coated asbestos, the packing is suitable for temperatures between -50 F and 400 F, and for pressures up to 250 psi, without adjustment or re-packing. Along with

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Precision-built CARD SCREENS

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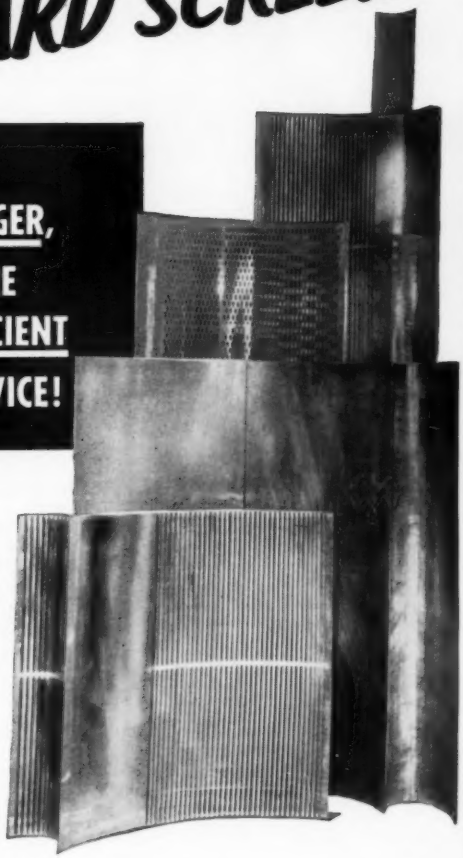

Maximum operating efficiency and durability of GASTONIA Card Screens is assured by thorough examination at each stage of fabrication.

Exacting scientific final inspection guarantees setting points within standard tolerance.

GASTONIA standard type rib or perforated Card Screens are cut and assembled on specially designed precision-built jigs.

When you need Card Screens of any type . . . for any purpose . . . cottons, woolens, worsteds, synthetics, asbestos . . . manufactured, repaired or rebuilt, call GASTONIA.

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*A sheet metal works serving textile mills*

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- Picker screens
- Waste Machine screens
- Card screens
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COMBER RENEEDLING
Expert reneedling of combs for cottons, worsteds and synthetics.

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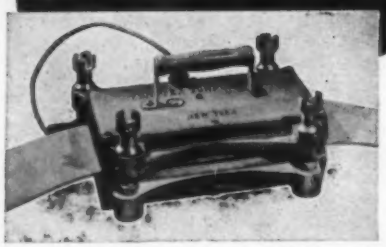

**Time Tested for 20 Years.**

The only complete system for making belts endless on your machines, including Ton-Tex tools, cements, instructions, and the #1000 Ton-Tex Vulcanizer.

This practical low priced 2 plate #1000 was developed and patented by Ton-Tex to meet the demand for a lightweight portable unit. Weighs only 37 lbs., and operates from any lamp socket outlet. Includes automatic thermostat control, pilot light, and heat indicator.

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*The Most for your brush money*

# Felton Textile Brushes

Extra performance is the big reason for ordering Felton Brand. Over seventy-five years' experience plus modern equipment and scientific fibre selection assure users long wear, top quality at lowest possible prices. Here are four popular numbers from the nearly 200 designs of hand and machine brushes furnished to textile mills . . .

**Finger Brushes** Exclusive Felton design sets hair, bristle or nylon in Bakelite, yet costs no more.

**Filling Grate Brushes** Two popular styles either stiff nylon or heavy coarse fibre.

**Comber Dusters** Top value is Felton's #41-23 pure horsehair duster — real quality at a popular price.

**S. A. FELTON & SON CO.**
**Manchester, N. H.**

Felton

*SOLD AND STOCKED IN THE SOUTH BY:*

**Schmidt Mfg. Co.**
**of South Carolina**
**Greenville, S. C.**


the packing, there is available a packing gland assembly for better guidance of the stem, resulting in less packing wear and hysteresis. The packing can be used with hot and cold water, steam, air, oil, ethylene glycol, and similar materials.

*Powers Regulator Co., 3434 Oakston St., Skokie, Ill.*

Do you want more data? Write supplier or use card on page 171; List C-217

**A simplified standard load switch,** developed to control overload conditions of both fractional and multiple horsepower electric motors, is designed for such applications as detecting misaligned or dulled cutting tools in drilling or milling operation, overloaded conveyors, presses, cranes, mills, etc. A single unit handling all horsepower ranges can be readily installed in any electrical circuit, and adjusted to activate visual or audio signals, open and close contacts, etc.

*J. I. C. Electric Co., 19255 W. Davison, Detroit 23, Mich.*

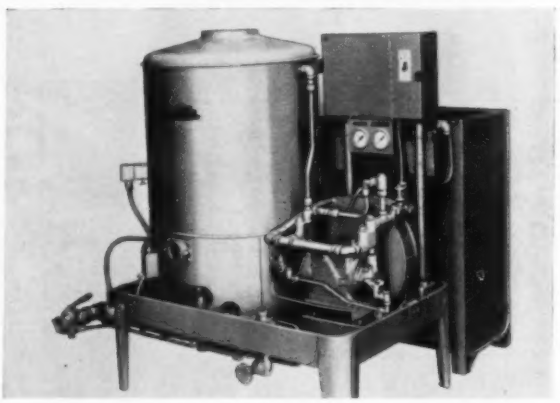
Do you want more data? Write supplier or use card on page 171; List C-218

**Hanger bearing assemblies** for industrial conveyor rolls —equipped with Graphalloy bushings—retain their properties over a wide range of temperatures (minus 450 F to 750 F). The assemblies may be used in high temperature equipment such as dryer and oven conveyors, and are particularly suited for roller dryers. The bushings do not attract dirt or lint, and are thus free from their abrasive action.

*Graphite Metallizing Corporation, 1069 Nepperhan Ave., Yonkers, N. Y.*

Do you want more data? Write supplier or use card on page 171; List C-219

**A heavy-duty steam cleaner,** designated the 280 "Blast-Master," delivers all or any part of a full 280 gallons per hour of balanced cleaning solution. Completely self-contained and fully automatic, the model is designed for



light, medium, heavy or extra heavy cleaning. Controls automatically regulate fuel to the burner and water flow to the coil.

*Clayton Manufacturing Co., 401 No. Temple City Blvd., El Monte, California.*

Do you want more data? Write supplier or use card on page 171; List C-220

**Portable elevating trucks,** known as the Champion Series, are available in battery-powered (1500-lb capacity) or pedal-operated (1000-lb capacity) models. Both types are equipped with hydraulically actuated steel platforms and floor brakes.

*The American Pulley Co., 4200 Wissahickon Ave., Philadelphia 29, Pa.*

Do you want more data? Write supplier or use card on page 171; List C-221

## New Books

For management interested in controlling the costs of such programs, *Controlling Employee Benefit and Pension Costs* was written. Consisting of papers which highlight the experience and operating philosophies of companies which have taken carefully thought-out steps to fulfill the needs of their employees and, at the same time, have taken positive steps for controlling the costs of these benefits, the book is compiled from material originally prepared for a special conference held by American Management Association's Insurance Division at the Palmer House in Chicago, March 11-12, 1957. This special report has been distributed without charge to AMA members enrolled to receive Research Service in the Insurance Division. Those who have not received it as part of their membership service, or who wish to obtain copies, may order the report at $2.50 per copy. Price to non-members: $3.75. Order from American Management Association, Inc., 1515 Broadway, Times Square, New York 36, N. Y.

*ASTM Standards on Soaps and other Detergents* brings together in convenient form for use in industry all of the ASTM standards and tentatives pertaining to soaps and other detergents. Included are seventeen specifications for soaps and soap products, nine specifications for various alkaline detergents, and sixteen methods of analysis covering soaps and other detergents. Definitions of terms applying to these materials are also included. Of the standards contained, ten are new or recently revised. The specifications, methods of test, and definitions included in this publication represent the work to date of ASTM Committee D-12 on Soaps and Other Detergents. Recommended to soap and detergent manufacturers, textile manufacturers, chemists, and the users of cleaning materials in quantity such as commercial laundries, hospitals and similar institutions, and government agencies. Copies may be obtained from the American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. Price: $2.75.

The second printing of *The Modern Textile Dictionary*, by George Linton, contains over 12,000 terms covering all phases of the textile and allied industries. Its scope ranges from apparel to asbestos; from fiber to finish; from the history of costume, fashion, and style to management and labor; from lace to laundry practice; from plastics to spot removers; and the proper care of clothing. Pictures, diagrams and flow charts, weave constructions, and other illustrative material are included in this 772-page cloth bound book. Published by Little Brown & Co., 34 Beacon St., Boston 6, Mass., in association with Duell, Sloan & Pearce. Price: $12.50.

The revised second edition of *Textile Chemicals and Auxiliaries* is a compilation of descriptive material pertaining to all commercially important chemicals used in the processing of textiles. The first eight chapters deal with the nature and the processing of fabrics, while the remaining chapters deal with the raw materials in fabric processing. The major emphasis is on organic chemicals and particularly on surface-active agents (surfactants). A chapter, new to this edition, is felts and non-woven fabrics; and a chapter of flameproofing has been entirely rewritten by the Army Quartermaster Corps' Research and Development Command in accordance with new military requirements. Copies are available from Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y. Price: $13.50.

*Kemp Singeing Head in Action*

**Increase singeing speeds 75% and more . . .**

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Kemp Radiant-Flame Compression Singeing equipment can speed up your operation from 75% to 100%... drastically reduce costs for labor, maintenance, and fuel . . . and still turn out a *better product!*

Kemp singeing is a high-speed operation, ideal for modern fabrics. Material travels over burners in a split second; is brushed by a solid mass of flame for a closer, more even singe. The unique Kemp *pre-mix* concept . . . the mixing of oxygen and fuel gas *before* ignition . . . eliminates excess oxygen in the combustion chamber formed by the burner head and rapidly traveling material. Thus, the nap is not burned, but *carbonized* and carried away by escaping combustion gases. The resulting singe is cleaner, faster, and cheaper.

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KEMP OF BALTIMORE

# PAINT BULLETIN

FROM INDUSTRIAL FINISHES DIVISION
MINNESOTA PAINTS, INC.

**SUBJECT: Minnlite Finishes**

**No. 2 of a new, instructive series of Paint Bulletins. The information, compiled by the Industrial Division of Minnesota Paints, Inc. is the result of intensive research and extensive data collected from numerous successful applications.**

**It is gratifying to note the interest aroused by our recent Paint Bulletin on floor finishes. This second Bulletin will explain some of the work being done by our Industrial Finishes Division to meet the really tough requirements demanded of wall and ceiling coatings in mills, factories and other manufacturing plants.**

In formulating an all-around finish for heavy-duty application, our paint chemists were confronted with many problems. Unlike applications in homes, schools and offices where conditions for paint application are normally favorable, applications of industrial finishes are often made under conditions which are most unfavorable. In spite of this, the finish must flow on smoothly and easily and dry quickly to the *permanent*, superior surface required of a heavy-duty protective coating and the finished surface must withstand exposure conditions which would defeat ordinary coatings.

Minnlite Maintenance Finishes were formulated and test-proven for adaptability to a wide range of exposure conditions including heat, moisture, fumes, acids, alkalies, gases, etc. often present in industrial plants. Formulation of "Minnesota" Minnlite finishes is based upon selected alkyds, re-enforced with synthetic rubber to provide a smooth, tough, flexible surface that insures heavy-duty service combined with pleasing appearance.

Color stability of Minnlite finishes is excellent. Scientifically pigmented colors start bright and stay bright long after ordinary paints become dull and dirty. These finishes are available in a range of safety-proven maintenance colors plus sparkling, sanitary white.

Another advantage of special Minnlite finishes is versatility to overcome difficult maintenance problems in various areas of a plant. In a wide selection of primers and top coats, they provide a complete finishing system for metal, wood, plaster and masonry surfaces.

For detailed information on these economical, heavy-duty finishes or for expert personalized help in solving finishing and maintenance problems, write to Industrial Finishes Division, Minnesota Paints, Inc., 1101 Third Street South, Minneapolis 15, Minnesota

## *Here is a LINEUP of Minnlite Industrial Finishes*

### MINNLITE UNDERCOAT WHITE

The ideal first coat application for two-coat work on new or over previously painted surfaces. Especially recommended for porous areas.

### MINNLITE GLOSS WHITE

Low in cost, easy to apply. Retains its whiteness under ordinary conditions permitting a longer span of time before repainting. As near fume-proof as a product of this character can be made. Minnlite Gloss Tints also available.

### MINNLITE FUME-PROOF UNDERCOAT (RUBBER BASE) WHITE

For use under Minnlite Fume-Proof on all interior wall surfaces subjected to extreme conditions. Easy to apply, quick to dry. Stops suction, resists action of strong chemicals and fungus growth as only rubber can. Controls alkaline and saltpeter conditions; dries quickly even under unfavorable conditions.

### MINNLITE EGGSHELL WHITE

Designed to meet the demand for a soft, velvety, semi-gloss effect on factory walls. Has unusual obliterative powers, makes an ideal product for one-coat work over previously painted surfaces.

### MINNLITE FUME-PROOF (RUBBER BASE) GLOSS

Produces a gloss white interior wall finish that stays white and will not yellow even under very unfavorable conditions. Entirely unaffected by moisture, steam, fumes, gases. Available in full range of industrial colors.

### MINNLITE RUST INHIBITIVE PRIMER

Combats rust and corrosion. Effectively protects metal parts against corrosive attack. Has been used very successfully on air conditioning and other equipment, maintenance and structural materials, pipelines, ducts, etc.

Minnesota PAINTS

**MINNESOTA PAINTS, INC.**

Your Minnesota Paints Industrial Finishes Representative, with his detailed product knowledge and ability to correctly diagnose your particular problems, can help you select "just the right product" or products. Why not reduce your maintenance material costs and extend your surfaces' lasting power. CONSULT THE MAN FROM "MINNESOTA PAINTS."

PLANTS AT: Atlanta Minneapolis Ft. Wayne Dallas GENERAL OFFICES: 1101 Third Street South, Minneapolis, Minnesota

*Staley's presents:*

# Weavers Through The Ages

## *Spain . . . 9th and 10th Centuries*

**In the late Middle Ages, the Moors, after the conquest of Spain, cultivated cotton and, along with plainer fabrics, wove the first dimities and fustians.**

The Moorish Caliphs of Spain brought to Europe more than their religion and culture. For, tradition has it, in the early 9th Century, a cotton embroidered mantle was presented by Mohammedan rulers to Charlemagne of France. By the middle of the 10th Century, cotton cultivation had risen to a high point under the Eastern traditions of craftsmanship that had yet to find their way into France, Germany and England. The treasures that the Moors created from the cotton plant of Spain remain today as delicate examples of early textile art.

This heritage of craftsmanship has remained among the world's weavers. Today, modern electronic magic controls quality as did the sharp eyes of master weavers in the past. But the principle is the same, the art is no less an art. Through the sizing, printing and finishing functions of a modern textile mill, new processes yield finer results than the ancients ever thought possible. Staley's products for the textile industry—quality starches, gums and dextrins—have played an important part in the profitable yield.

For the textiles of tomorrow, as well as those of today, you can depend on the research and production facilities of the Staley Company to furnish the products you need when you need them. The challenge of the future calls for intensified work on the part of us all. We are glad to serve with you in answering that challenge.

**A. E. Staley Mfg. Co., Decatur, Illinois**

Branch Offices: Atlanta · Boston · Chicago · Cleveland · Kansas City
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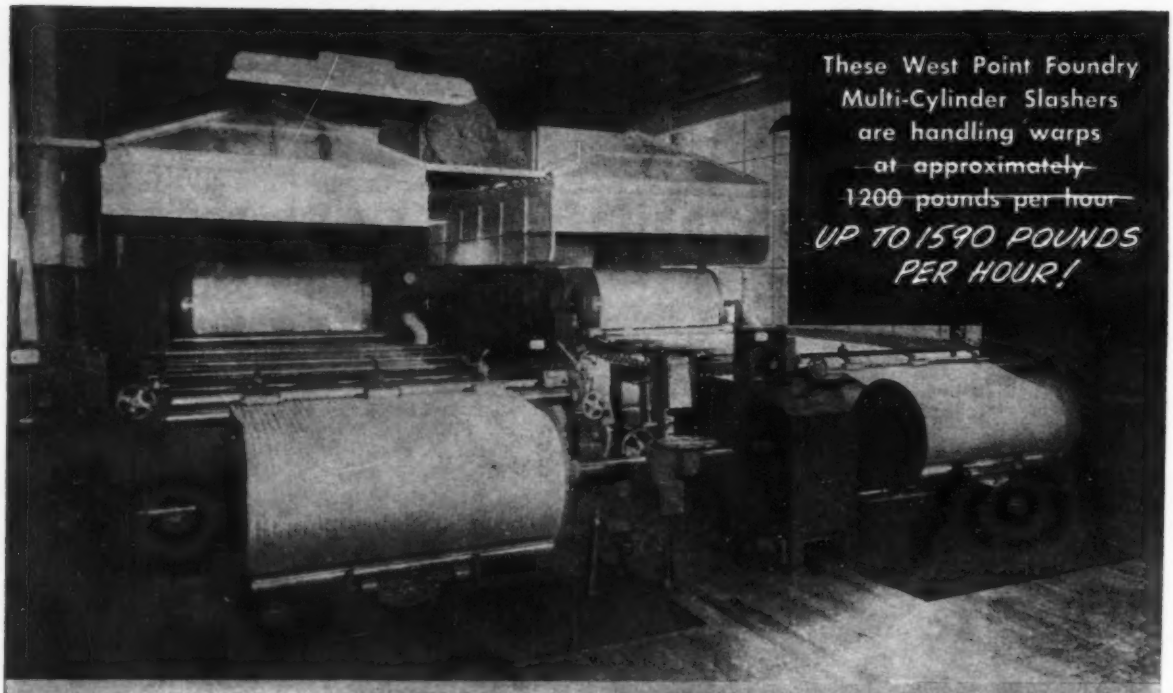
# Slash more warp at LESS COST




We used to talk about drying rates of 1200 pounds per hour. Now West Point Foundry MULTI-CYLINDER slashers have recorded drying rates of 1590 to 1635 pounds per hour on nine cylinders, and our 11-cylinder slashers have turned in record performances of 1850 and 2050 pounds per hour. Speeds of 110, 125, and 150 yards per minute are achieved regularly, and in one case, over 230 yards per minute without sacrifice of the high quality necessary in today's textile operations.

That's *high production*—the reason why *three* West Point Foundry MULTI-CYLINDER slashers replaced *seven* old 2-cylinder slashers in a recent installation. Put West Point to work for you!

## *Increase production... lower cost*

**MULTI-CYLINDER SLASHERS** already in many mills have cut in half the number of slashers *and the floorspace* needed to handle a mill's production. And they continue to produce for years with dependable, high speed performance. They are built on heavy *machined* CAST IRON frames —built to take it! Another important advantage of the MULTI-CYLINDER SLASHER is its extreme versatility. It does an outstanding job on cotton, spun and filament synthetics. Telfon coating on entering cylinders makes it completely applicable to cotton. Multiple cylinders permit graduated temperature controls when required for synthetic warps. Superior *control* of tension throughout the slasher and *steam economy* are two more profit-making features. THIS SLASHER IS A MONEY-MAKER.

*Remember—you have a choice with West Point because West Point Foundry makes both MULTI-CYLINDER and AIR-DRI® Slashers*

**WEST POINT Foundry & Machine Company**

WEST POINT, GEORGIA

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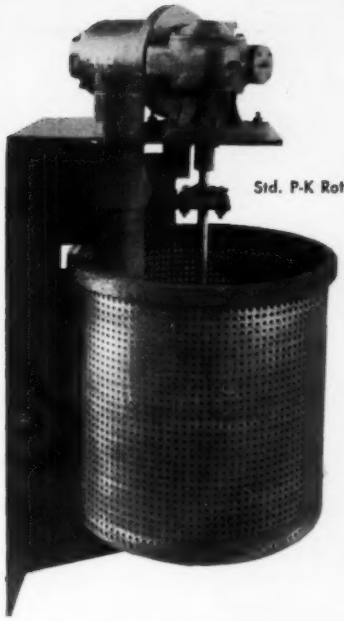
Lint-free hot waste is pumped to heat reclaimer. Accumulated lint and scum is easily removed from sump.



Std. P-K Roto-Screen

# Measure your maintenance in minutes per year... with a P-K Heat Reclaimer Roto-Screen®

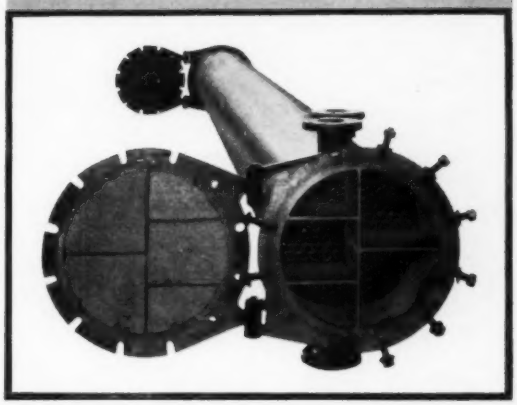
The obvious way to avoid tube stoppage in a closed-type heat reclaimer is not to let lint or soap curds enter the tubes. And that's exactly what a P-K Roto-Screen does for P-K Heat Reclaimers.

A perforated cylindrical basket, installed in the sump pit, revolves at a speed sufficient to keep its outer surface clean of accumulations of lint and waste. In addition, to offset pump suction or surge, the surface is scraped clean at each revolution by a fixed stainless steel knife. The pump suction line is inside the basket and supplies only screened waste water to the pump itself and to the reclaimer tubes.

But this is not all. If the sump tank should surge and overflow the Roto-Screen, the P-K closed-type reclaimer is fitted at both ends with quick-opening doors that permit immediate access to the tubes for inspection. Add to this a generous heating surface to take care of accidental fouling and you can understand why users report "Six months after installation, reclaimer doors were opened for inspection revealing no trace of line or accumulation".

If you have a P-K closed-type reclaimer installation or are considering a waste heat recovery operation, use the coupon today. Complete field engineering service is available without obligation.

*Patented 20



P-K closed type Waste Heat Reclaimer is of multiple pass, single unit construction. Quick opening doors at both ends of reclaimer make inspection simple—downtime negligible.

**Patterson Kelley**

Laundry and Textile Division

P-K Steam Mizers • P-K Boiler Return Systems • P-K Heat Exchangers • P-K Pre-Krete Lined Storage Water Heaters

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# HELPFUL BOOKLETS FREE!

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**3-2 NAPHTHOL FOR LIGHTFAST BROWNS.** Booklet describes new, straight, nonsubstantive naphthol, Naphthol As-BN, for the continuous naphtholation of cotton and rayon piece goods in the dyeing of economical, fast-to-light browns. General Dyestuff Co., 435 Hudson St., New York 14, New York.

**3-3 DRIVE PROVIDES CUSHIONED START.** Booklet describes drive with cushioned start, remote jogging, remote threading, even let-off tension, constant torque, adjustable tension, and hydrodynamic braking. The Oilgear Co., 1560 W. Pierce St., Milwaukee 4, Wisconsin.

**3-4 LUBRICANT FOR SYNTHETICS.** Booklet illustrates Fibregard, a colloidal lubricant that adheres uniformly and continuously to the surfaces of man-made fibers. Harry Miller Corp., 4th and Bristol Sts., Philadelphia 40, Pa.

**3-5 WIDE SETOVER PIN DRAFTER.** Booklet describes advantages, technical aspects, adaptments of wide setover Pin Drafter. Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, Ohio.

**3-6 HAND DRYERS.** Booklet describes savings which can result from the use of mechanical hand dryers in mill restrooms. World Dryer Corporation, 616-22 W. Adams St., Chicago 6, Ill.

**3-7 CHEMICAL SPECIALTIES.** Contains over one hundred chemicals regularly used in textiles, together with an index and chemical classification of the products. Emkay Chemical Co., 319-325 Second St., Elizabeth, N. J.

**3-8 FLOOR CARE.** Booklet describes scrubbing, waxing, polishing, and mopping equipment along with waxes, sealers, and cleansers. Finnell System, Inc., 1300 East St., Elkhart, Ind.

**3-9 PLASTIC PARTS.** Booklet describes production facilities, technical staff and plastic stock which work together to provide precision engineered plastic parts. Engineered Plastics, Inc., Gibsonville, North Carolina.

**3-10 INDUSTRIAL FLOOR FINISHES.** 16-page book contains specifications and descriptions of industrial floor finishes for textile use. Includes directions for application. Minnesota Paints, Inc., 1101 Third Street, South, Minneapolis, Minn.

**3-11 LAB INSTRUMENTS AND EQUIPMENT.** Describes 50 different units including testing and calibration instruments and fixtures. Custom Scientific Instruments, Inc., Kearny, New Jersey.

**3-12 V-BELTS.** Tells how raw materials and finished belts are tested and inspected. Quality control and experimental production covered. Booklet 5-51107, Dept. 794, Goodyear Tire & Rubber Co., Akron 16, Ohio.

**3-13 NON-WOVEN FABRICS.** Booklet gives outline of nature and history of non-wovens and the manufacturing techniques of today. Booklet 56-219A, Chemical Div., Goodyear Tire & Rubber Co., Akron 16, Ohio.

**3-14 COMPRESSED AIR PROCESSING.** Describes advantages to be gained—in better and longer air equipment performance with lower maintenance costs—through compressed air processing. C. A. Norgren Co., Englewood, Colo.

**3-15 HUNTER DYEING EQUIPMENT.** Describes fully with diagrams Hunter Model A Dye Becks, Hunter No/Lap Reels, Model S Dye Kettles, Open Width Dye Kettles, Sample Dye Kettles. James Hunter Machine Co., North Adams, Mass.

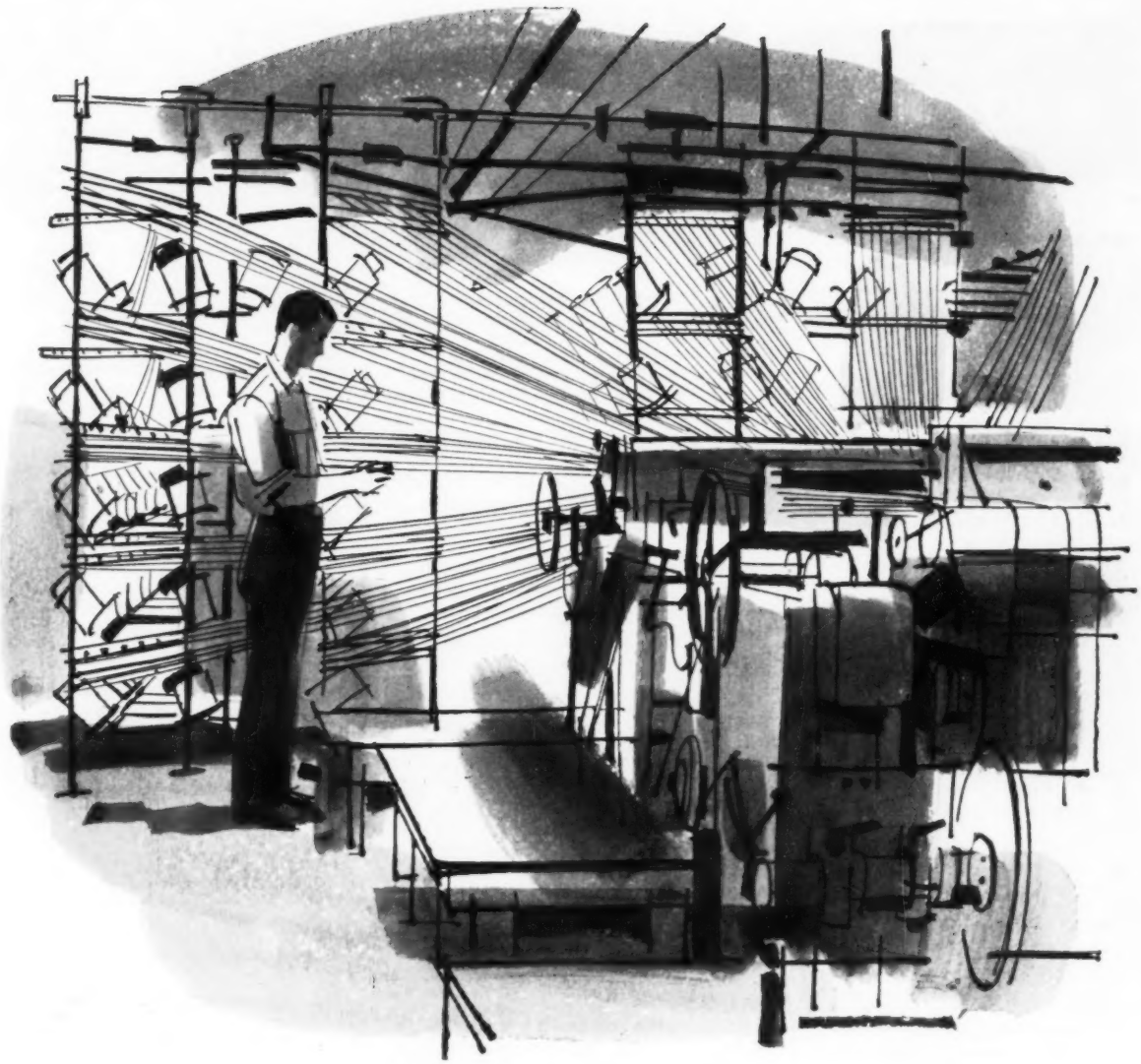
**3-16 YARN COUNT SCALE.** Data sheet tells how direct-reading instrument provides fast, accurate method of determining yarn count number. Exact Weight Scale Co., Columbus, Ohio.

**3-17 GLYCERINE REPLACEMENT.** Data sheet describes GLISOLA S, a most advanced glycerine replacement based on a complex glycol ester. Isochem Corporation, 221 Oak Street, Providence 9, R. I.

**3-18 LARGE PACKAGE TWISTER.** Information on new anti-friction Jumbo Twister which carries a 14" bobbin with a 12" build. Meadows Mfg. Co., P. O. Box 4354, Atlanta, Ga.

**3-19 TRUCKS DOFF, STORE, BECOME SPOOLER TRAY.** Brochure tells how mobile boxes are being used as doff boxes, storage boxes, and spooler trays on Barber-Colman Spooler Fisher Mfg. Co., Hartwell, Ga.

**3-20 FLOW CONTROL.** Complete information on largest selection of values to handle flow control requirements. William Powell Co., 2525 Spring Grove Ave,, Cincinnati 22, Ohio.



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*Here in our Technical and Textile Service Department we use actual mill machinery under mill operating conditions. With such complete facilities, we can start with the fiber, open it, card it, spin it, weave it, dye and finish it. Or starting with the yarn, we can beam it or twist it, weave it or knit it, dye it and finish it. What works here will work in your mill, too.

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**R-1 Lummus Pepper-Shaker Opener** —Gives complete details and photographs Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

**R-2 Static Elimination** — How to eliminate static safely and inexpensively. Simco Co., 920 Walnut St., Lansdale, Pa.

**R-3 Card Grinding Information** — Care and operation of cards. B. S. Roy & Son Co., Worcester, Mass.

**R-4 Card Clothing** — Describes Strip-O-Matic Card Clothing. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia, Pa.

**R-5 Versa-Matic Drawing Frame** — Describes drafting elements, quality of sliver, roving and yarn possible. Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.

**R-6 Sargent Opener**—Describes opener with rotary evener and stripper. C. G. Sargent's Sons Corp., Graniteville, Mass.

**R-7 Ball Bearing Comb Boxes** — Describes working principle, shows cut-away Views, Southern States Equipment Corp., Hampton, Georgia.

**R-8 Feathertouch Drafting** — Describes "highest production per frame at lowest cost." Ideal Industries, Inc., Bessemer City, N. C.

**R-9 Automatic Weighing Feeders** — Tandem Weighing Feeder produces webs, mats and felts of continuing accuracy. W. D. Dodenhoff Co., Inc., Box 178, Greenville, S. C.

**R-11 Flexidyne Individual Card Drive**—Describes operating principles, includes prices. Dodge Mfg. Co., Mishawaka, Indiana.

**R-12 Bobbins** — Catalog describes metal, wood and plastic bobbins. Illustrations show actual use. Lestershire Spool Div., National Vulcanized Fiber Co., Johnson City, N. Y.

**R-13 Tips On Carding Procedure** — Very helpful monthly bulletin concerns card operation and care. Ashworth Brothers, Fall River, Mass.

**R-14 Pneumastop For Fly Frames**—Brochure shows type of installation and method of operation. Pneumafil Corp., Charlotte 8, N. C.

**R-15 Advantages of Aldrich Pickers** —Good technical text, comprehensive pictures. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

**R-16 Universal Card Coiler**—Gives 12 reasons why it's "the best," includes dimensions. McDonough Power Equipment, Inc., McDonough, Ga.

**R-17 New Condenser Tape** — Describes Supr-O-Tape an impregnated fabric condenser tape. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia 34, Pa.

**R-18 Coilers and Conversions** — Describes new complete coilers and conversions for cards. Southern States Equipment Corp., Hampton, Ga.

**R-19 84" Woolen Card** — Includes picture, floor plan, description, and technical details. Davis & Furber Machine Co., North Andover, Mass.

### SPINNING—TWISTING—WINDING—SPOOLING—WARPING—THROWING

**R-101 Spinning News** — Up-to-the minute news on spinning equipment. Roberts Co., Sanford, N. C.

**R-103 Products For Spinning and Weaving**—Complete line, applications, advantages shown. Dayton Rubber Co., Textile Div., Dayton, Ohio.

**R-104 New Bobbin Manual** — Only complete, authoritative bobbin guide in the industry. Write direct to Dept. DD, Lestershire Spool Division, National Vulcanized Fibre Co., Wilmington 99, Delaware.

**R-105 Spindle Oil** — "Gulfspin" insures against excessive wear and eliminates spindle wobble. Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa.

**R-108 High Speed Automatic Quiller** —Lists advantages and dimensions of "Autocopser." Terrell Machine Co., Inc., P. O. Box 928, Charlotte, N. C.

**R-110 Stop Frame On Roving Failure**—Adamstop instantly detects roving failures, stops frame. Adams, Inc., 209 East Stone Ave., Greenville, S. C.

**R-111 Automatic Cop Winder**—Tells how high production with less labor is possible. F. A. Lazenby Co. 3106 Elm Ave., Baltimore 11, Md.

**R-112 Bahnson Packaged Modernization**—Details on Collecto-Vac, Open-Aire Creels, Cross-Jet Cleaner, Air Conditioning. Bahnson Company, Winston-Salem, N. C.

**R-113 Sectional Warper** — Describes full width and sectional warpers for knitting, weaving. Robert Reiner, Inc., Weehawken, New Jersey.

**R-114 Conical Rings and Flyers** — Complete details and specifications. Herr Manufacturing Co., Inc., 318 Franklin St., Buffalo 2, New York.

**R-115 Precise Winding Machine** — For winding pineapple or straight cones and tubes of synthetics. Foster Machine Co., Westfield, Mass.

**R-116 Automatic Cleaning Equipment**—Working details and advantages of the Tri-Rail Cleaner. American Monorail Co., 13107 Athens Ave., Cleveland 7, Ohio.

**R-117 Aluminum Section Beams** — Lists advantages, includes prices and delivery schedules. Hayes Industries, Inc., Jackson, Mich.

**R-118 Lubricants For Textiles** — Samples of Ben Boy Bearing, Spindle, Twister Lubricants and Non-Melting Oils. Georgia-Carolina Oil Co., Box 101, Macon, Ga.

**R-119 Custom Made Thread Guides**—Includes composition, properties, specifications of all designs. American Lava Corporation Chattanooga 5, Tenn.

**R-120 Spinning Frame Conversions**—Big-package, new-frame results at half the cost. Meadows Mfg. Co., Station A., Atlanta, Ga.

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**R-123 Spinning and Twister Rings** — Complete details, pictures, price lists. Whitinsville Spinning Ring Co., Whitinsville, Mass.

**R-125 Lint-Free Creel**—Complete details and pictures of the new Airfoil Design. Pneumafil Corporation, Charlotte 8, N. C.

**R-126 Gear Bulletins** — Cover products and gears for the complete textile mill. Precision Gear & Machine Co., 2001 N. Tryon St., Charlotte 2, N. C.

**R-128 Suction Cleaning System**—Details on new Collector Unit Model C-4. Pneumafil Corp., Charlotte 8, N. C.

**R-129 Facts About Your Flyers and Spindles**—Advantages of smooth flyer and spindle operation. Ideal Machine Shops Bessemer City, N. C.

**R-132 Traveling Cleaners**—Describes improved frame and room cleaners. Parks-Cramer Co., Fitchburg, Mass.

**R-133 Lapless Endless Spinner**—Full information available. Ton Tex Corporation, 31 Columbus Ave., Englewood, N. J.

**R-135 Worsted Spinning** — Describes five stages from top to yarn. Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

**R-139 Spindle Oiling Machine**—Features and advantages noted. Wicaco Machine Corp., 4800 Stenton Ave., Wayne Junction, Philadelphia 44, Pa.

**R-141 Handy Spinning Reference** — Shows traveler speeds, sizes of ring flanges. Victor Ring Traveler Co., Providence, R. I. and Gastonia, N. C.

(Continued Next Page)

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Following are the results of two spectograph tests.

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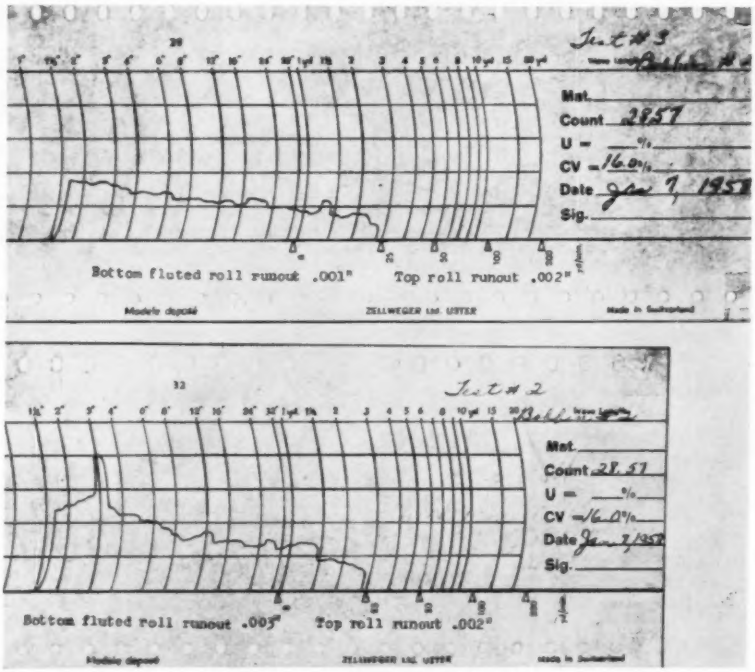


Test #3, taken with new F. A. Young steel rolls using same drafting and roving as in Test #2. Bottom Fluted Roll Runout one thousandth of an inch (.001)

Tests show that 80% of our new rolls run .001 or less.

**NOTE:**
**Same Top Rolls used in both tests having runout of two thousandths of an inch (.002)**

Test #2, taken with Bottom Fluted Roll having runout of three thousandths of an inch (.003)

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**R-146 Cone Winder**—Describes Model 102 winder, including applications. Foster Machine Co., Westfield, Mass.

**R-147 Short Cut To Staple Fiber Spinning**—Ten steps in operation of the Tow Stapler. Turbo Machine Co., Lansdale, Pa.

**R-148 Weaver's Knotter** — Instructions as to use, description. A. B. Carter, Inc., Gastonia, N. C.

**R-149 Textile Roll Coverings** — Describes complete line as well as other mill supplies. Armstrong Cork Co., Industrial Div., Lancaster, Pa.

**R-150 Lint-Free Motor** — Describes motor for constant speed a-c driven pickers, roving frames, spinning and twisting frames, etc. Westinghouse Electric Corp., P. O. Box 2278, Pittsburgh 30, Pa.

**R-151 Tape For Driving Spindles** — Describes banding for spindle drives on twisting, roving and spinning. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia 34, Pa.

**R-152 Giant Aluminum Cotton Beams**—Describes 38 x 54" section beams for cotton. Hayes Industries, Inc., Jackson, Mich.

**R-153 Woolen Spinning Frame** — Colored picture, complete details Davis & Furber Machine Co., North Andover, Mass.

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**R-205 Slashing Hints**—Covers complete slashing operation. Seydel-Woolley & Co., 748 Rice St., N.W., Atlanta, Ga.

**R-206 Loom Production Charts** — Celluloid card shows yards per loom per week. Ralph E. Loper Co., Greenville, S. C.

**R-207 Aluminum Beams**—Describes lightweight beams for textiles, Hayes Industries, Inc., Jackson, Mich.

**R-208 The Story Of Starches** — History and information on manufacture and use of starches. National Starch Products, Inc., 270 Madison Avenue, New York 16, N. Y.

**R-209 Loading System** — Pneumatic loading system for Saco-Lowell slasher. The Foxboro Company, Foxboro, Mass.

**R-211 Steel Warp Beams**—Beams for both broadloom and narrow fabrics. Milton Machine Works, Inc., Milton, Pa.

**R-212 Penford Gums In Textiles** — Describes excellent properties for warp sizing spun yarns. Penick & Ford Ltd., Inc., 420 Lexington Ave., New York 17, New York.

**R-213 Saco-Lowell Positrol Slasher**—Includes advantages, photographs, cut-away drawings. Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

**R-214 Rotary Unions**—Cut costs, get better sealing on can dryers. Perfecting Service Company, 332 Atando Ave., Charlotte, N. C.

**R-215 Hot Air Slasher** — Describes advantages and capacities, includes specifications. West Point Foundry & Machine Co., West Point, Ga.

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**R-217 Butt-Tacking Sewing Machine**—Describes operation, installation of single thread butt-tacking sewing machine. The Merrow Machine Co., 28 Laurel St., Hartford, Conn.

**R-218 Loom Reed Booklet** — Describes in detail a variety of reeds. Steel Heddle Mfg. Co., 2100 West Allegheny Ave., Philadelphia 32, Pa.

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**R-228 The Random Web Process** — Describes the Rando-Webber and Rando-Feeder. Bulletin 105. Curlator Corp., Textile Div., 501 W. Commercial St., Rochester, N. Y.

**R-232 Hydraulic Slasher Drives** — Bulletin 5571 describes economical approach to improved slasher operation. Vickers, Inc., 1036 Peachtree St., Atlanta, Ga.

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**R-241 Textile Machinery Parts Catalog** — Describes complete line of Dayco and Thorobred textile parts. Dayton Rubber Co., Dayton, Ohio.

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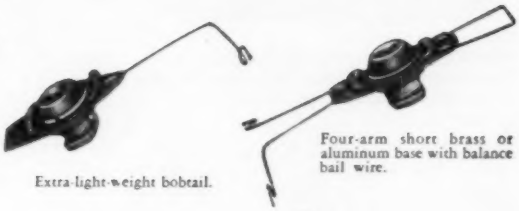

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**R-244 Squirrel-Cage Loom Motor —** Describes totally enclosed, non-ventilated, constant-speed motors. Westinghouse Electric Co., P. O. Box 2278, Pittsburgh 30, Pa.

**R-245 Static Bars —** Humorously illustrates how static can be overcome. The Simco Co., 920 Walnut St., Lansdale, Pa.

**R-246 Care Of Draper Shuttles —** Describes how longer, troublefree service may be obtained. Draper Corporation, Hopedale, Mass.

**R-247 Clutch Brake Motor For Draper Looms —** Describes compact power package for driving Draper looms. Westinghouse Electric Corp., P. O. Box 2278, Pittsburgh 30, Pa.

**R-249 Slash 450 FPM**—Slasher drive controls located 20 feet away, gives up to 25% more production. Bulletin 4-2311, Reliance Electric & Engineering, Dept. 208A, Cleveland 10, Ohio.

**R-251 Small Pilot Slasher —** Information on new all-electric Callaway Slasher. Ideal for mills which must prepare a lot of samples. West Point Foundry & Machine Co., West Point, Georgia.

**R-252 Weaving Machines —** Textile job report No. 20 on Warner & Swasey Sulzer weaving machines at Yale Woolen Mills. Warner & Swasey, 5701 Carnegie Ave., Cleveland 3, Ohio.

**R-253 One-Piece Sizing Agent —** Houghto-Size CW provides low kettle cost, results in free-running warp of high breaking strength, increasing weaving efficiency. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

## KNITTING

**R-301 Singlehead Full-Fashioned Machine —** Literature on request from the Wildman Jacquard Mfg. Co., Full Fashioned Div., Norristown, Pa.

**R-302 Forged Head Aluminum Beams —** Gives specifications on new high yardage beams. Milton Machine Works, Inc., Milton, Pa.

**R-303 Raschel Knitter —** Describes new Raschel-type knitting machine. Kidde Manufacturing Co., Inc., 35 Farrand St., Bloomfield, N. J.

**R-304 Vibralon For Hosiery**—Greater snag resistance, dullness, warmth and absorbency. W. F. Fancourt Co., 519 S. Delaware Ave., Philadelphia 47, Pa.

**R-305 "Slashes 450 Yards Per Minute" —** Reliance Slasher Drive gives up to 25% more production. Bulletin D-2311. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

**R-306 Booklets On Fidelity Machines —** Details on "400", Multi-Design Ribber, Skein Reelers. Fidelity Machine Co., 3908-18 Frankford Ave., Philadelphia 24, Pa.

**R-307 Needle Oil Does Not Stain —** Details on "Gulftex 39" developed for knitting mills. Gulf Oil Corp., P. O. Box 1106, Pittsburgh 30, Pa.

## DYEING—BLEACHING—FINISHING—PRINTING

**R-401 Solvent Detergents —** Capabilities and advantages noted. Oakite Products, Inc., 126C Rector St., New York, N. Y.

**R-402 Tubes For Package Dyeing —** Describes Dytex tubes for one-time use. Sonoco Products Co., Hartsville, S. C.

**R-403 Finishing Machinery —** Text and photographs of complete line of machinery. Marshall and Williams Corp., 46 Baker St., Providence, R. I.

**R-404 Water Analysis —** Includes tables, conversion factors, indicators, standard solutions. Solvay Process Div., Allied Chemical & Dye Corp., 61 Broadway, New York 6, N. Y.

**R-405 Dyeing Equipment —** Diagrams and descriptions of complete line. James Hunter Machine Co., North Adams, Mass.

**R-406 Urea, Formaldehyde.**—Literature on urea, formaldehyde or U.F. concentrate-85. Dept. CUFI-29-1, Nitrogen Div., Allied Chemical and Dye Corp., 40 Rector St., New York 6, New York.

**R-407 Acid Mordant Blue B**—Details on Acid Alizarine Blue B for bright navy shades. Zinsser & Co., Inc., Hastings on Hudson 6, New York.

**R-408 Hydrogen Peroxide —** Covers properties, uses and handling. Solvay Process Div., Allied Chemical & Dye Corp., 61 Broadway, New York 6, N. Y.

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**R-413 Chemicals, Dyes And Intermediates —** Complete file of bulletins available. Metro-Atlantic, Inc., Centredale, R. I.

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**R-417 Textile Chemicals —** Describes leading products for wet processers. Royce Chemical Co., Carlton Hill, N. J.

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**R-422 Catalyst AC-6 —** Tells how curing efficiency may be stepped up as much as 25%. Monsanto Chemical Co., Plastic Division, Dept. T1-3, Springfield 2, Ohio.

**R-423 Soda Ash Bulletin —** Contains useful data covering this subject. Solvay Sales Division Allied Chemical & Dye Corp., 40 Rector St., New York 6, New York.

**R-424 Water Repellent Finish —** Describes Aquarol water repellent finish. Arkansas Co., Inc., Newark, N. J.

**R-426 Industrial Oil —** Catalogs on Industrial Oil and Fatty Acid products. Swift & Company, Industrial Oil Dept., 1800 165th St., Hammond, Indiana.

**R-428 Chemical Catalog —** Lists products with chemical composition, properties and applications. Antara Chemicals Div., General Aniline & Film Corp., 435 Hudson St., New York 14, New York.

**R-429 Chemical Bulletins —** Issued each month as a help to wet processers. WICA Chemicals, Inc., P. O. Box 506, Charlotte, N. C.

**R-430 Hydraulic Power Units —** Describes unit for operating hydraulic textile machines. B. F. Perkins & Son, Inc., Holyoke, Mass.

**R-431 Proctor Drying Machinery —** Describes all types of dryers, includes information on preboarding. Proctor & Schwartz., Inc., 7th and Tabor Rd., Philadelphia, Pa.

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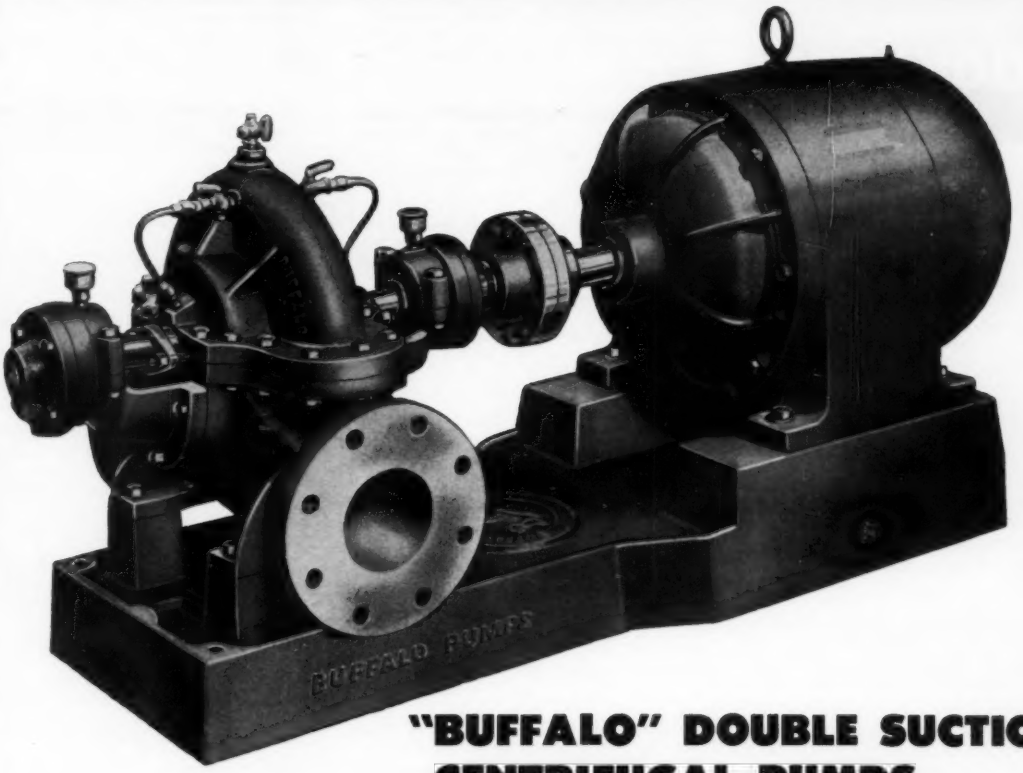


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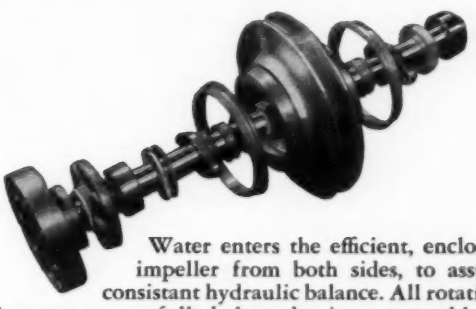

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**R-436 Rapidase For De-Sizing** — The properties and characteristics of Rapidase in detail. Wallerstein Co., Inc., 180 Madison Avenue, New York 16, N. Y.

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**R-438 Surface-Active Agent** — Properties, applications, of Nonionic Actylphenoxyethanol Triton. Rohm & Haas Co., Special Products Dept., Washington Square, Philadelphia, Pa.

**R-439 Curing Oven** — Details, pictures, and advantages of gas-fired oven. James Hunter Machine Co., North Adams, Mass.

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**R-442 Hycar Latices** — Physical properties and typical fields of application. B. F. Goodrich Chemical Co.,

**R-443 Sodium Hydrosulfite** — Literature and test samples are available on "T-C Hydro." Tennessee Corp., 617-629 Grant Bldg., Atlanta, Ga.

**R-445 New Finishing Rolls** — Money-saving facts about long-wearing, quality rolls. The Dayton Rubber Co., Holfast Div., 1486 Lakewood Ave., Atlanta, Ga.

**R-446 Ethanolamines** — Lists application, chemical and physical properties. Nitrogen Division, Allied Chemical and Dye Corp., 40 Rector St., New York 6, New York.

**R-447 Nappers For Treating Any Fabrics** — Complete details on Muller Tri-Napping Machine. Franz Muller, Monchen-Gladbach, Germany.

**R-448 Ball Bearing Turn Table** — Describes 48-inch steel turn table for mills. Birch Brothers, Inc., 32 Kent St., Somerville, Mass.

**R-449 Rotary Dyeing Machine** — For use in dyeing hosiery, hats, gloves, socks, etc. Smith, Drum & Co., Allegheny Ave., at 5th St., Philadelphia 33, Pa.

**R-452 Micro Switch For Wet Process** — Advantages and applications in dyeing, bleaching, finishing. Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill.

**R-453 Complete Line Of Mathieson Chemicals** — Covers organic, inorganic, specialty chemicals. Olin Mathieson Chemical Co., Industrial Chemicals Div., Baltimore 3, Md.

**R-455 Aligning Lays**—Setting instructions for step-by-step aligning. Draper Corporation, Hopedale, Mass.

**R-456 Dyeing and Finishing Machinery** — Complete line presented in series of catalogs. Birch Brothers, Inc., 32 Kent St., Somerville 43, Mass.

**R-457 Dyeing, Bleaching and Drying Equipment** — Complete line for cotton, wool and synthetics described. Color pictures. Morton Machine Works, 1718 3rd Ave., Columbus, Ga.

**R-458 Napthol Ratios Slide Chart** — Quickly and accurately enables operators to determine Napthol Ratios. Aliance Color & Chemical Co., 33 Ave. P, Newark 5, New Jersey.

**R-459 "PCB" Rock Salt** — Tells how product saves money, eliminates bad dyeing. Morton Salt Co., Industrial Division, 120 So. LaSalle St., Chicago 3, Ill.

**R-461 Wool Oils**—Describes influence of wool oils in producing suality yarns and fabrics. Proctor & Gamble Dist. Co., Gwynne Bldg., Cincinnati, Ohio

**R-462 Bleaching With Peroxygen Chemicals** — Bleaching methods comprehensively treated. Becco Chemical Div., Food Machinery & Chemical Corp., Station B, Buffalo 7, New York.

**R-464 Automatic Control System For Continuous Bleaching** — How to control temperature, pressure and liquid level. Taylor Instrument Companies, Rochester 1, New York.

**R-466 Penford Finishing Gums** — Complete data, including physical properties. Penick & Ford Ltd., Inc., 420 Lexington Ave., New York 17, New York.

**R-467 Regeneration Of Zeolite Water Softeners** — Explains advantages of Lixate Process. International Salt Co., Scranton, Pennsylvania.

**R-468 Dyeing Synthetic Fibers**—Detailed analysis of methods and materials. General Dyestuff Co., 435 Hudson St., New York 14, New York.

**R-469 Single Apron Stock Dryers** — Presents latest idea in automatic drying. C. G. Sargent's Sons Corp., Graniteville, Mass.

**R-470 Eliminate Dye-Bath Shock** — How to protect fabrics from crow's-feet, uneven shades. Foxboro Company, 487 Neponset Ave., Foxboro, Mass.

**R-474 Industrial Brushes** — Features use on shears, printing machines. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

**R-475 Waste Heat Recovery** — Describes system of waste heat recovery from polluted water. Ludell Mfg. Company, 5200 West State Street, Milwaukee, Wis.

**R-476 Washers For Scouring, Bleaching, Acidifying** — Describes high-capacity, continuous process washers. C. G. Sargent's Sons Corp., Graniteville, Mass.

**R-478 Wool Cleaning Unit**—Describes unit for cleaning carpet wools mechanically before scouring. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

## FIBERS AND YARNS

**R-501 Textile Research**—Story of the Research Department. American Viscose Corp., 350 Fifth Avenue, New York 1, N. Y.

**R-502 Fortisan-36, New Textile Fiber**—Includes charts, diagrams, text, presents technical properties. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte, N. C.

**R-503 Caprolan Nylon Heavy Yarns**—Describes strength, long flex life and ready dyeability. Fiber Sales Dept., National Aniline Div., 261 Madison Ave., New York 16, N. Y.

**R-506 Rayon—Mile By Mile**—Details on how rayon is produced mile by mile, perfect inch by inch. Industrial Rayon Corp., 500 Fifth Avenue, New York 18, N. Y.

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**R-507 The Chemstrand Nylon Story**—Describes the birth and growth of Chemstrand nylon. Chemstrand Corp., 350 Fifth Ave., New York 1, N. Y.

**R-508 Color-Fast Fibers** — Further information on "Coloray," Courtauld's solution dyed rayon staple which is a contribution to colorfastness in fabrics. Courtaulds (Alabama) Inc., 600 Fifth Ave., New York 20, N. Y.

## RESEARCH—TESTING—LABORATORY

**R-601 Testing Instruments**—Descriptions of 37 instruments for testing textiles. Custom Scientific Instruments, Inc., 541 Devon St., Kearney, N. J.

**R-602 Metal Detector** — Spot troublemakers before they harm equipment or fabrics. Radio Corp. of America., Dept. S-271, Building 15-1, Camden, N. J.

**R-603 Shadograph Weighing Devices** —Pictures and information on various types of scales. Exact Weight Scales Co., Columbus 8, Ohio.

**R-604 Evenness Tester**—Details on taking the guess out of quality control. Uster Corp., 2516 Wilkinson Blvd., Charlotte, N. C.

**R-606 Strobotac — Measures speed of rotating, reciprocating or other cyclic motions. General Radio Co., 275 Massachusetts Ave., Cambridge 39, Mass.**

## MANAGEMENT, PROCESS ENGINEERING CONSULTANTS, FACTORS

**R-701 Factoring Service**—Details on advantages of factoring, including information on general banking and pension plans. Trust Company of Georgia, Atlanta, Ga.

**R-702 Beechcrafts At Work** — Tells how Beechcraft executive airplanes can save time and money. Southern Airways Co., Atlanta Airport, Atlanta, Ga.

**R-705 The Wonalancet Way** — Deals with current problems in Textiles. Wonalancet Company, 128 Burke St., Nashua, N. H.

**R-706 A Fair Day's Pay And In Return A Fair Day's Work** — Outlines proper utilization of labor, material and equipment. American Associated Consultants, Inc., 250 Park Ave., New York, N. Y.

## GENERAL PLANT OPERATION

**R-801 Textile Brushes** — Describes complete line of brushes for all departments of mill. S. A. Felton & Son Co., Manchester, N. H.

**R-802 Belt Lacing Equipment** — Includes prices, specifications, etc. Clipper Belt Lacer Co., Grand Rapids, Michigan.

**R-804 "Motor Selector."** — How to select a-c motors for specific application. Bulletin B-2103. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

**R-805 Everything For Floor Care** — Describes scrubbing, waxing, polishing and mopping equipment as well as waxes, sealers, and cleansers. Finnell System, Inc., Dept. TI, 1300 East St., Elkhart, Ind.

**R-806 Rotary Pressure Joints**—Details on self-lubricating, self-adjusting, self-aligning joints. The Johnson Corp., Three Rivers, Mich.

**R-807 Servicing "One-Shot" Lubricators**—Describes high capacity spring discharge piston pump lubricator. Bijur Lubricating Corp., 151 W. Passaic St., Rochelle Park, N. J.

**R-809 Wrap Up Lint Problems**—Automatic lint filters remove lint from air, winds it into desposable roll. Bulletin 234, American Air Filter Co., 275 Central Ave., Louisville 8, Ky.

**R-810 Stop Corrosion** — Details on "Speed-Rex" paint for metal, wood and concrete. Truscon Laboratories, Box 69, Milwaukee Junction, P. O. Dept. T, Detroit 11, Mich.

**R-812 Mechanical Power Transmission** — Includes drawings, dimension, weights, prices, application. Dodge Mfg. Corp., Mishawaka, Indiana.

**R-813 Metal Cleaner and Preserver** —Describes Immunol, a neutral, nontoxic, non-flammable, odorless solvent that cleans, degreases and rustproofs metal. Harry Miller Corp., 4th and Bristol Sts., Philadelphia 40, Pa.

**R-816 Leather Belting** — Selection, installation, proper maintenance. Atlanta Belting Co., 508-510 Whitehall St., S. W., Atlanta, Ga.

**R-817 One-Shot Lubricators**—Details on pull-type semi-automatic lubricators. Bijur Lubricating Corp., 151 W. Passaic St., Rochelle Park, N. J.

**R-818 Story of Nylon Bristle.** — Tells of discovery and production, with special attention to "Tynex," a form of Nylon ideal for use in brushes. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

**R-820 Floaxial Dial Scales** — Explains mechanism and gives applications. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

**R-821 Modern Methods Of Textile Floor Maintenance** — Complete details on taking care of mill floors. G. H. Tennant Co., 2530 N. Second St., Minneapolis 11, Minn.

**R-822 Industrial Greases** — Describes multi-purpose lithium soap industrial greases. Sinclair Refining Co., 600 Fifth Ave., New York, New York.

**R-823 Roller Bearings For Textiles** —How roller bearings are employed for more profitable textile production. Hyatt Bearings Div., General Motors Corp., Harrison, N. J.

**R-824 Cylinders And Boosters** — Complete listing of "in stock" equipment including proce and description. Miller Fluid Power Co., 2040 N. Hawthorne, Melrose Park, Ill.

**R-826 "Maintenance of Variable Speed Drives"** — Illustrates simple program for keeping drives in top shape. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

**R-828 Blower And Exhausters** — Full description, including detailed drawings. Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.

**R-829 Paint Stripping Booklet** — Explains simplified method of stripping paint. Oakite Products, Inc., 22 Thames St., New York 6, New York.

**R-830 Air Filtration** — Illustrates Auto-Airmat, a dry-type air filter. American Air Filter Co., Inc., 275 Central Ave., Louisville 8, Ky.

**R-832 Drinking Fountains & Coolers** —Description of all models, dimensions, illustrations. Halsey W. Taylor Co., Warren, Ohio.

**R-833 Textile Leathers Catalog** — Characteristics and advantages of "Tannate" leathers. J. E. Rhoads & Sons, 2100 W. Eleventh St., Wilmington, Del.

**R-834 Catalog Of Needle Bearings** — Design, application for five types of needle bearings. The Torrington Co., Torrington, Conn.

**R-835 Textile Lubrication** — Shows methods and means of lubricating all machinery. The Texas Co., 135 East 42nd St., New York 17, N. Y.

**R-836 Metered Lubrication** — Points up advantages of central lubrication systems. Bijur Lubricating Corp., Rochelle Park, N. J.

**R-837 Service Procedure For Ball Bearings**—Helpful manual shows how to increase life of ball bearings. New Departure Div., General Motors Corp., Bristol, Conn.

**R-839 Lubrication Of Electric Motors** —How to lubricate and clean ball and roller bearings. New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, New York.

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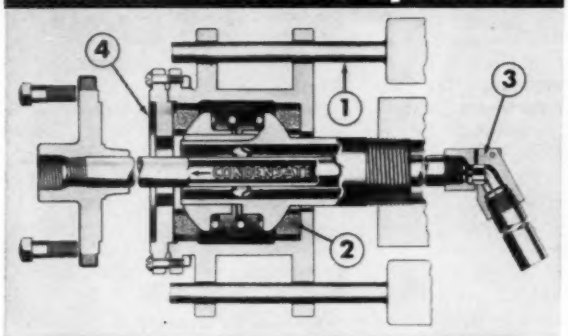


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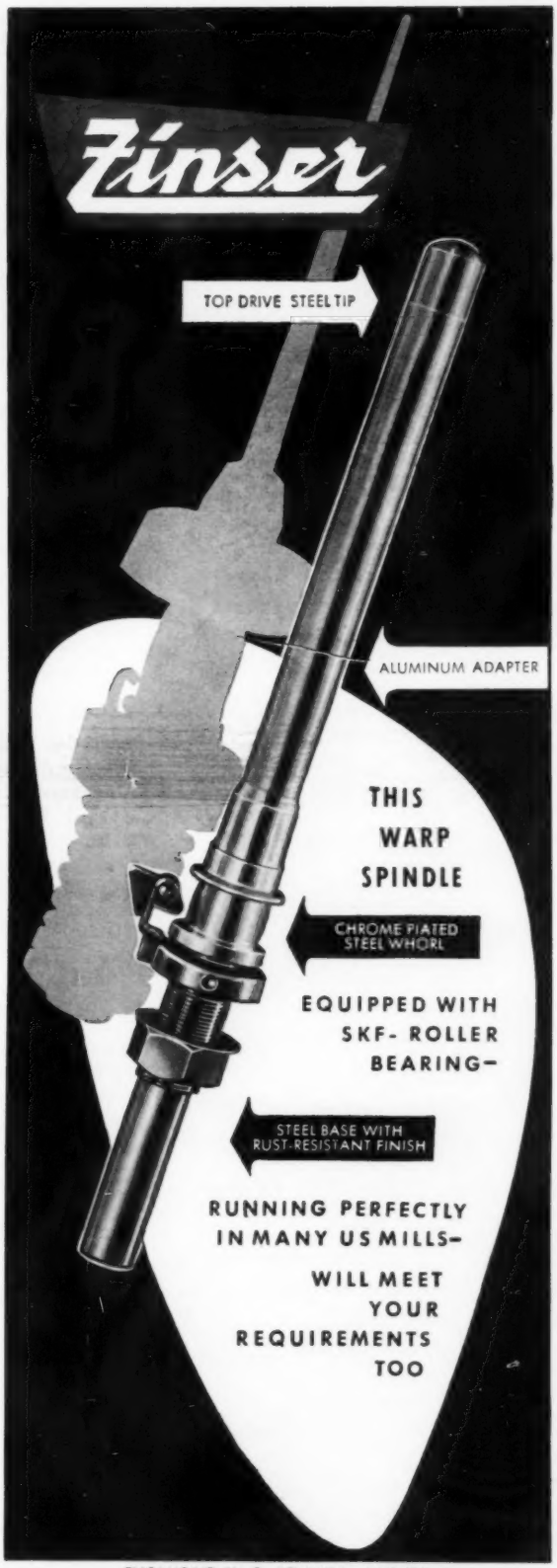
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## Personal NOTES ABOUT MEN YOU KNOW

*(Continued from page 40)*

Sterling Pile Fabrics Corp., Fall River, Mass.

Newly elected directors of Textile Hall Corp., Greenville, S. C., are: **Roger Milliken,** president of Deering Milliken & Co., Inc.; **R. D. Sellers,** president of Southern Bleachery & Print Works, Inc.; and **Earle R. Stall,** vice-president of Cone Mills Corp.

The U.S.D.A.'s Southern Utilization Research and Development Division, New Orleans, La., has recently been realigned to make the research program more efficient. **Dr. C. H. Fisher** continues as director of the division; **Dr. G. E. Goheen** and Messrs. **A. M. DuPre', Jr., C. L. Hoffpauir,** and **R. M. Persell** were named assistant directors. Chiefs of the applied research laboratories are: **Dr. V. H. McFarlane,** Food Crops Laboratory; **T. H. Hopper,** Industrial Crops Laboratory; **Dr. F. S. Perkerson,** Cotton Chemical Laboratory; **R. J. Cheatham,** Cotton Mechanical Laboratory; and **E. L. Patton,** chief of the Engineering and Development Laboratory.

**Sam S. Walker** has been elected chairman of the Walker Knitting Co., Martinsville, Va. Succeeding Mr. Walker as president is his son, Dudley.

An organizational change effective January 1 of South Carolina Woodside Mills combines the Haynsworth, Simpsonville, and Liberty plants into the fancy goods division with the Greenville, Easley, and Fountain Inn mills forming the plain goods division. **Harold Mason** will be in charge of manufacturing of the fancy goods division, and **Troy Carter** will be in

### OBITUARIES

**Levi H. Ballou,** 74, director of The Kendall Co., Boston, Mass.

**M. Stanley Brown,** 66, advertising and marketing counselor to textile firms, New Rochelle, N. Y.

**R. H. Dempster,** 57, purchasing agent of the old Appalachian Mills, Knoxville, Tenn.

**Howard C. Faust,** 70, retired operator of Gold Seal Hosiery Co., Reading, Pa.

**Richard E. Ferguson, Sr.,** 68, founder and senior partner in Industrial Supply Co., Clinton, S. C.

**G. F. Fisher, Sr.,** 72, president and founder of George F. Fisher & Co., Inc., Scarsdale, N. Y.

**Jay Earle Garvin, Sr.,** 59, retired manager of Burlington Throwing Co., Greensboro, N. C.

**Maurice E. Gelinas,** 61, professor in the department of textile engineering at Lowell (Mass.) Technological Institute.

**Maurice Hendrick,** 71, former general manager of Cliffside Mills and Haynes Mill, Shelby, N. C., and Avondale, N. C.

**John P. Ilges, Sr.,** 76, board chairman of Lummus Cotton Gin Co., Columbus, Ga.

**Ellis M. Johnston,** 74, retired president and treasurer of Woodside Mills, Greenville, S. C.

**W. A. (Bill) Julian,** 63, former head of the cotton buying department of Burlington Industries.

**Charles W. Loomis,** 66, retired vice-president and director of general personnel at Bemis Bros. Bag Co., St. Louis, Mo.

**Frank J. Mackey,** 78, retired superintendent of American Combing Co., Olneyville, R. I.

**Thomas H. Mettler,** 71, board chairman of the Interwoven Stocking Co., New Brunswick, N. J.

**Leonard S. Molendyke,** 42, sales representative for American Aniline Products division of Koppers Co., Paterson, N. J.

**Joseph N. Paradis,** 76, editor and publisher of "Fiber and Fabric," North Cambridge, Mass.

**Ralph Rhodes,** 42, vice-president of the Bigelow-Sanford Carpet Co., Thompsonville, Conn.

**Charles Robbins, Jr.,** 47, former owner and president of Robbins Knitting Co., Spruce Pine, N. C.

**William D. Sanders,** 34, textile engineer for J. P. Stevens & Co., Milledgeville, Ga.

**Robert H. Shaner,** 68, president of Perkiomen Knitting Mills, East Greenville, Pa.

**Moses (Monty) Siegel,** 64, president of Jean Ribbon Mills, Paterson, N. J.

**John Hartman Taws,** 81, vice-president of The Fletcher Works, Philadelphia, Pa.

**Henry F. Thomas,** 47, owner of Henry F. Thomas, Inc., Forest City, N. C.

**Frank Wineskie,** 83, retired director of Acclaim Hosiery Mills, High Point, N. C.

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## Personal NOTES ABOUT MEN YOU KNOW

charge of manufacturing of the plain goods division. **David Cromwell,** Woodside assistant vice-president, will be charged with the responsibility of merchandising liaison between the New York sales offices and mill production.

J. P. Stevens & Co., Inc., Greenville, S. C., has elected **W. Gordon McCabe, Jr.,** a vice-president of the firm, to the board of directors, and has named new vice-presidents as follows: **James D. Finley,** assistant to Campbell D. Garrett, who is directly responsible for all phases of merchandising and sales activities for the company's entire cotton goods operation; and **Whitney Stevens,** who continues in his capacity as assistant to J. P. Stevens, Jr., in sales and merchandising of woolen, worsted, and blended fabrics for men's and boys' wear.

**Walter F. Wolfe** has been elected vice-president and **Albro N. Dana** has been named assistant treasurer of Indian Head Mills, Inc., New York, N. Y. Mr. Wolfe is general manager of the company's Franklin Process Division, operating yarn dyeing and finishing plants at Providence, R. I.; Philadelphia, Greenville, S. C., and Chattanooga, Tenn., and a spinning mill and yarn bleachery at Fingerville, S. C. Mr. Wolfe previously headed Franklin Process Co., recently purchased by Indian Head Mills. Mr. Dana, who was senior vice-president and treasurer of the firm, will continue as principal financing officer.

**Claude L. Welch,** head of the National Cotton Council's production and marketing division, has been named 1957 "Man of the Year in Service to Southern Agriculture" by *Progressive Farmer* magazine. In announcing the award, the magazine recognized Mr. Welch for Council activities aimed at eradicating the pink bollworm, its efforts in cotton quality improvement programs, and various production conferences, and said that already, largely through Mr. Welch's efforts, great strides have been made in improving the quality of cotton. Examples include the elimination of tar-bottomed picksacks and asphalt covered bale ties, as well as spinning-ginning tests to determine the effect of ginning practices on cotton quality, etc.

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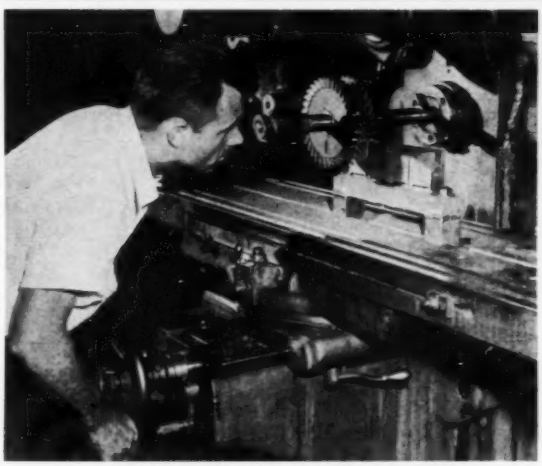

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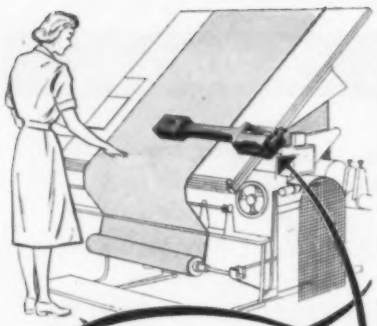

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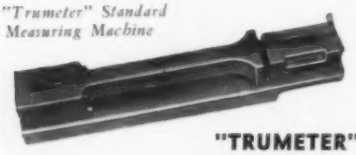

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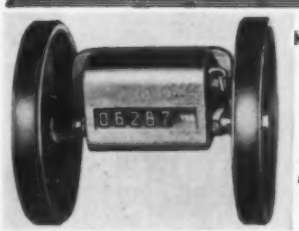

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# What the TEXTILE MILLS are doing

A camera club is being formed at **Avondale Mills,** Sylacauga, Ala., under the leadership of W. R. Austin, vice-president in charge of sales, and Walter T. Lefevre of the general office.

The cotton padding machinery of Aragon (Ga.) Mills, a unit of **United Merchants and Manufacturers, Inc.,** has been purchased by **Southern Mills Inc.,** Atlanta, Ga. The machinery is to be used in Southern's Atlanta and Roswell, Ga., plants.

**Caledonian Dye Works,** Philadelphia, Pa., recently installed two fully automatic stainless steel machines for use in tape dyeing.

At Leesville, S. C., Edenfield Mills, Inc., a subsidiary of **Kent Mfg. Co.,** has ceased operations. The Pickens, S. C., plant of Kent, Runnymede, is expanding production.

With the passing of 1957, **Exposition Cotton Mills,** Atlanta, Ga., finished 75 years of progress, and prepared a special edition of its employee newspaper, *The Exposition,* to help observe the occasion. One feature of the newspaper was a reprint of an article which appeared in the 1937 edition of "Cotton," TEXTILE INDUSTRIES' name prior to 1947, honoring three Netherland brothers (Fred H., W. C., and J. P.) who then had accrued 35, 18, and 33 years respectively with Exposition. Two of the brothers, Fred H. and J. P., are still with the firm.

In Gloversville, N. Y., **Fulton County Silk Mills** recently celebrated its 50th anniversary. The firm, a large producer of warp knit fabrics, began operations by producing "glove silk" (so called because the tricot and Milanese silk fabrics produced were used principally in gloves) on two machines in a couple of rooms in a "little red building."

Early this year **Globe Dye Works Co.,** Philadelphia, Pa., honored four of their 50-year men. Each of the four received a $500 savings bond.

The majority of the stock of **Berryton** (Ga.) **Mills** has been purchased by **Henderson** (N. C.) **Cotton Mills.** The firm will continue to operate as Berryton Mills with A. B. Hammond as president. Minor changes will be made in the plant's production, 8s to 30s yarn, to tie it in with the production of the Harriet-Henderson Cotton Mills.

The trade name and good will of **Hub Hosiery Mills,** Lowell, Mass., has been sold to **Alex Lee Wallau, Inc.,** New York distributor of children's hosiery. **William T. Toner Co.,** Lansdale, Pa., has purchased the machinery and has consolidated manufacturing at Lowell. Toner manufactures Wallau's Bonnie Doon hosiery exclusively.

**Moore Cotton Mill Co.,** Lenoir, N. C., recently observed its 50th anniversary with a party for officers, directors, and supervisory and long-term employees.

Eleven employees of the **U. S. Rubber Co.** plants in Hoganville, Ga., recently were awarded diplomas in textile vocational classes.

**Wissahickon Plush Mills,** 3727 Main St., Philadelphia 27, Pa., is now designated **Ridgeway Fabric Mills, Inc.**

A braided cord firm, **West Georgia Mills,** Whitesburg, Ga., has completely modernized its opening and picking facilities.

**Ames Textile Corp.,** Lowell, Mass., has purchased the plant, inventory, and business of **Sutton's Mills,** North Andover, Mass. No change in the mill operation is contemplated.

**Excelsior Mills, Inc.,** Union, S. C., has begun publication of an employee newspaper. Excelsior is a member of Deering, Milliken & Co., Inc.

In Canton, Mass., **John W. Dahl & Co., Inc.,** has moved into part of the building formerly occupied by Neponset Woolen Mills.

**Patrician Knitting Co., Inc.,** has

moved from Syracuse, N. Y., to new and larger quarters in Lafayette, N. Y.

As soon as the goods in process have been run out, the **Apponaug (R. I.) Co.,** printers and finishers, will cease operations and liquidate the plant.

To stimulate interest in textile education, several Georgia mills in recent weeks have sponsored conducted tours for high school students through the Georgia Tech campus. The activities are part of a program of the Georgia Textile Education Foundation to sustain adequate enrollment in textile schools. Firms participating to date: **Walton Cotton Mill,** Monroe; **Callaway Mills Co.,** LaGrange and Manchester; **Southern Mills, Inc.,** Atlanta; **Scottdale Mills,** Scottdale; **Exposition Cotton Mills,** Atlanta; **Piedmont Cotton Mills,** East Point; and **Coats and Clark, Inc.,** Acworth.

A new reading service for management and supervisory personnel of **Cone Mills Corp.,** Greensboro, N. C., has been established. A large number of books and other reading material on subjects in human relations, technology, management, etc., are kept on a special shelf in the Cone Mills Library at Greensboro.

**Colgate Piece Dye Works,** Hawthorne, N. J., is running out its stock preparatory to closing. The plant contains 45,000 sq. ft. of floor space, and is capable of processing 75,000 sq yd of synthetic fabrics daily.

At Hickory, N. C., **Westbury Knitwear Co.,** of New York City, has purchased the machinery of Eureka Knitwear Mills, Inc., and has leased the plant building. The firm will produce men's and boys' knit sport shirts. Elroc, the brand name of Eureka, was not included in the sale.

**Woodside Mills,** Greenville, S. C., is installing refrigeration equipment for air conditioning the warp spinning room. The program is to cost approximately $300,000.

At Albemarle, N. C., **Ware (Mass.) Knitters, Inc.,** has assumed operation of the former Lillian Knitting Mill and is conducting knitting and finishing operations there.

A plant is under construction in Albemarle, N. C., by **E. J. Snyder & Co., Inc.,** Ware, Mass., a dyeing and finishing firm, which will employ approximately 100 people.

**The Stedman Mfg. Co.,** producer of men's and boys' underwear, is erecting a two-story building in Asheboro, N. C., to be used as knitting, sewing, storage, shipping, and receiving space.

The machinery (circular and full-fashioned knitting, dyeing and finishing, loopers, seamers, and office furniture) of **Griffin (Ga.) Hosiery Mill** recently were sold.

A million-dollar plant for finishing cottons and synthetics for the garment trade is to be established by **Vel Cord Finishing Co., Inc.,** at Lumberton, N. C. The installation will utilize approximately 250 people.

**Kiesling-Hess Finishing Co., Inc.,** Philadelphia, Pa., has been formed to do stain-resistant and flame-proof finishing of small yardages of decorator fabrics for decorator and fabric houses formerly handled by the Schwarzwaelder Co.

For a long-wearing doffing basket to fit the individual requirements of your mill insist on the Lane Style 20. The tough, snag-proof body, built over a strong, resilient frame, gives low-cost, dependable service because of these exclusive Lane features:

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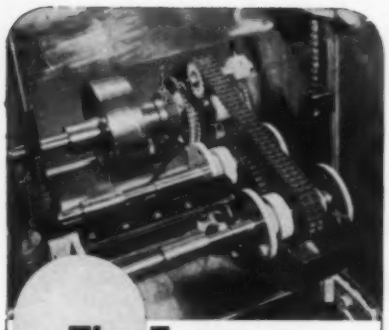

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# SUPPLIERS News

**WHAT THEY ARE DOING**

In his new post at the fibers division of **American Cyanamid Co.,** New York, N. Y., Mills Clark serves the knitwear and simulated fur fabric markets in sales, sales development, and merchandising of the firm's acrylic fiber, Creslan.

R. Power Fraser, Jr., has been promoted to general sales manager of **American Felt Co.** succeeding Jule F. Marshall, who retired as vice-president and general sales manager after 41 years with the company.

**The Hubbard Spool Co.,** Garrett, Ind., is operating as a division of **The American Pulley Co.,** following the latter's acquisition of the business and all assets with exception of the real estate of the former. Manufacturing of the Hubbard products will continue at the Garrett plant, with no changes contemplated in manufacturing, sales, or executive personnel, nor in policies.

Chairman of the newly appointed exhibition committee of **American Textile Machinery Association** is J. H. Bolton, Jr., vice-president and director of sales of Whitin Machine Works. Functions of the committee include planning for the ATMA-sponsored 1960 textile machinery exhibition, and Association participation in interim exhibitions. Chairman of the public relations committee, which has been named to work with the above committee and other ATMA groups, is George McRoberts, advertising manager of Whitin. Mrs. Mildred Barnwell Andrews, executive secretary of the Association, also serves as secretary to the two committees.

Dr. Charles J. Geyer, Jr., has been appointed director of the technical and textile service department of **American Viscose Corp.** * * * Malcolm V. Macfarlan has been named to the newly-created position of general sales manager for the rayon division, and has assumed responsibility for all the rayon product and sales service groups in the New York office, as well as for the branch offices. * * * Theodore V. Widyn has joined the firm as a sales representative for Filatex elastic yarns. Mr. Widyn's headquarters are in the Providence, R. I., district sales office.

At **American MonoRail Co.,** Cleveland, Ohio, H. A. Rehfeld has been promoted to sales manager, eastern

Mr. Rehfeld

division, replacing W. P. Conway who resigned. R. L. McEachern has been appointed sales manager, southeastern division, which includes the Charlotte, Atlanta, and Greenville offices.

**The Alvey Conveyor Manufacturing Co.** has appointed Kenneth E. Sutton, formerly of the New York office, to a post as New England representative, with headquarters in Westboro, Mass.

Theme of two educational programs starting March 3 and March 10 for maintenance engineering personnel and sponsored by **The Bahnson Co.** and associates at the Robert E. Lee Hotel in Winston-Salem, N. C., will be productive - preventive maintenance. For applications and program information, inquiries should be addressed to Frederick Boxall, The Bahnson Co., Box 367, Winston-Salem, N. C.

**Barco Manufacturing Co.** celebrates in 1958 the 50th anniversary of its founding.

**Better Packages, Inc.,** has assigned William C. Turner to cover the state of Georgia, with headquarters at 2358 Wineleas Road, Decatur, Ga. Blake Stallings was selected to take over Mr. Turner's North Carolina territory, and his address is 608 S.

Elam Ave., Greensboro, N. C.

John J. Egan has joined the **Chemstrand Corp.** as a sales representative assigned to the New York district sales offices located in the marketing division's headquarters, 350 Fifth Avenue. * * * An Acrilan Mark III blanket fiber, specifically engineered to provide whiteness and greater loft in blankets, will be introduced shortly by the firm.

**Clarke Sanding Machine Co.** has purchased the **Modern Power Sweeper Co.**, Azusa, Calif., and is continuing production at the Azusa plant. All orders for machines, service, and parts will be handled by Clarke.

Headquarters operations of **Commercial Factors Corp.** have been transferred to newly remodeled offices at One Park Ave., between 32nd and 33rd streets, in New York City.

At **Corn Products Sales Co.**, Robert C. Wheeler has been elevated to the newly created post of vice-president for personnel and public relations, and Alfred S. Wells to vice-president for purchasing.

Harold J. Johnson has been appointed assistant general manager in charge of research and development for **Denman Textile Rubber Co.**

At the **Dow Chemical Co.**, George J. Zahringer, Jr., has been appointed manager of market research, and Andrew J. Lazarus as manager of the product information service for Zefran, the firm's new textile fiber. Both will be based at textile fibers department offices in Warwick, Va.

John J. Barnhardt, Jr., has been promoted to manager of the textile section of the dyes division of **E. I. du Pont de Nemours & Co., Inc.**, in Wilmington, Del.

Recent reassignments in the textile division of **Eastman Chemical Products, Inc.**, are as follows: G. C. King, assistant sales manager, has been transferred from the New York office to Kingsport, Tenn., to assist W. T. Jackson in directing acetate fiber sales, sales service, and sales development on experimental fibers. A. C. Clow is now sales representative in the New England territory with offices in Providence, R. I.; R. H. Norrell and W. H. Smith have been assigned as sales development representatives for experimental fibers; R. T. Crawford has been named assistant to the assistant sales manager for Verel fiber, filter products, and sales development; Ralph Hudson has been assigned as service representative for Verel sales service; G. J. Gosselin has been appointed staff assistant, apparel merchandising in the New York office. * * * A reorganization of the field sales activities of the chemical division into three regional areas and the appointment of regional sales managers have been announced. The newly appointed regional sales managers include Robert H. Cannon who will direct the sales of chemicals and dyes in the New England and Middle Atlantic states; John H. Sanders becomes regional sales manager for those areas served by the division's Cleveland, Cincinnati, and Greensboro, N. C., offices plus other areas of the south and southeast; Decatur B. Campbell, Jr., has been appointed regional sales manager of the mid-western area. * * * Henry L. Ford has been elected a vice-president of **Tennesssee Eastman Co.**, a Kingsport, Tenn., division of Eastman Kodak Co. He is succeeded as vice-


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## SUPPLIERS News — WHAT THEY ARE DOING

president in charge of the chemicals division of Eastman Chemical Products, Inc., by Dr. James E. Magoffin. David C. Williams, another newly elected vice-president, heads the plastics division formerly under the direction of Spencer E. Palmer who has advanced to first vice-president of Eastman Chemical Products, Inc. Guy A. Kirton, assistant sales manager for the chemicals division, has assumed the duties of sales manager formerly held by Dr. Magoffin.

Just completed at Fiber Manufacturing Co., Newton, N. C., is a glass tape loom installation which includes six high-speed narrow fabrics looms built by **The Fletcher Works.**

Walter R. Brandt has been promoted to branch manager of the west coast sales office of **General Dyestuff Co.,** and in addition will act in the capacity of western regional manager for **Antara Chemicals.** Both firms are sales divisions of General Aniline & Film Corp.

The chemical division of the **Goodyear Tire & Rubber Co.** announces the transfer of C. H. Smith from the Philadelphia to Minneapolis field office. As a special representative, Mr. Smith will provide sales and technical service for all products marketed by the division, including those utilized in the textile industry.

**Graver Water Conditioning Co.** has become a completely integrated and wholly owned division of **Union Tank Car Co.,** Chicago, Ill. There will be no basic change in Graver's policy or method of operation.

**The James Hunter Machine Co.** has purchased from the estate of the late Morris Mudrick, through its newly formed wholly owned subsidiary, **Hunter Fiber Machine Co.,** the equipment and manufacturing rights of the **Mudrick Machine Works,** located at 3780 South Main St., Los Angeles, Cal. Earl G. Paules, vice-president of the Hunter Fiber Machine Co., and Arthur R. Campman will assume executive management of the new corporation, while continuing as western representatives of the parent company for its line of garnett machines, textile mill equipment, and products of other Hunter subsidiaries. The Mudrick organization had been a reclothing station for Hunter garnett cylinders, and also produced a line of pickers, condensers, and other preparatory machinery used in opening and cleaning of cotton, jute, sisal, and other natural and man-made fibers.

**Imperial Paper and Color Corp. (Canada) Ltd.** announces that it has entered into an agreement to purchase the dry color manufacturing facilities of the Sherwin-Williams Co. of Canada, Ltd. The agreement also includes the purchase of S-W's good will, customer lists, and manufacturing procedures for dry colors, but does not include any other activities of the S-W Co. of Canada, Ltd. Discontinued will be all S-W dry color operations, and Imperial will move the equipment it has purchased to the new St. Johns, Quebec, color plant. The company, a subsidiary of the Glens Falls, N. Y., firm, is now producing pigment colors in Canada at its St. Johns plant by modern techniques.

E. Taylor Mobley has been promoted by **Ciba Co., Inc.,** from sales manager to manager of the southern

Mr. Mobley

district, effective with the retirement of S. L. (Sam) Hayes. He now resides in Charlotte.

In a recent transaction, **Johnson Motor Lines** acquired all the stock of Atlantic States Motor Lines, Inc., of High Point, N. C. The combined operations will provide a fleet of more than 1,000 pieces of equipment and a staff of more than 1,200 employees.

**Walter Kidde & Co., Inc.,** has established a new wholly owned subsidiary, the **Kidde Textile Machinery Corp.,** which will embrace all of its textile machinery interests. The new company will operate in the same plant in Bloomfield, N. J., with the same personnel, and will maintain a sales office in Charlotte, N. C. Officers of the textile machinery firm are: William J. Behr, Jr., president; Howard W. Ruddick, vice-president; H. C. Noe, vice-president, engineer-

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**JULIAN S. HARRIS**, Vice-President — 232 Altondale Ave., Charlotte 7, N. C. Telephone—Edison 23055

**EDWARD H. BRANCH**, Secretary — 1508 Poincianna St., Huntsville, Ala. Telephone—Jefferson 4-6204

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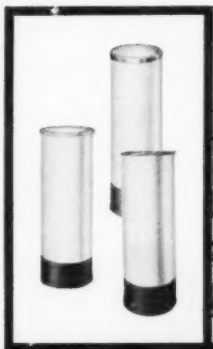
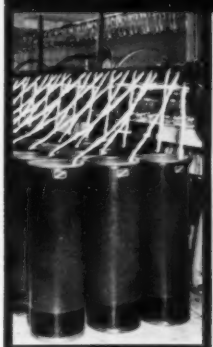


# Modern mill practice demands KENNETT RECEPTACLES



The problem of industrial production planning is to have the right thing in the right place at the right time—*in safe, steady, automatic flow.*

To solve this problem, textile men are turning in increasing numbers to Kennett as the industry standard for receptacles and prime movers. Here are a few of the many good reasons why:

Full line—There's a Kennett Receptacle for every textile handling job. Strong and smooth—National Vulcanized Fibre construction gives hard, glass-smooth surfaces that are strong, tough, resilient and durable. Light—but with long life—Kennett receptacles are light, easy to handle, but built for years of hard mill service.

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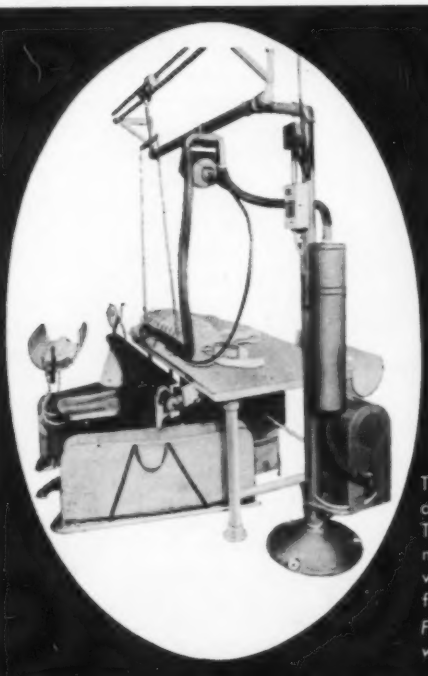

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## SUPPLIERS News — WHAT THEY ARE DOING

ing; D. W. Mack, treasurer; G. C. Hiss, secretary; Walter H. Freygang, chairman of the board.

H. S. Leybourne has resigned as president of Artex Woollens Ltd. and as vice-president of Textile Sales Ltd., to form **H. S. Leybourne & Associates,** a consulting agency on textile merchandising, styling, marketing, and manufacturing. The firm will occupy the office space formerly held by Textile Sales at 366 Adelaide Street West, Toronto, Ont., Can. In addition to the consulting agency, Mr. Leybourne will also act as commission agent or wholesaler for primary textile producers here and abroad.

T. Bayard Baldridge, Jr., has been appointed sales engineer for the **Rodman H. Martin Co., Inc.,** manufacturers of automatic processing machinery and custom alloy metal fabricator. Mr. Baldridge was formerly division sales manager for the yarn processing machinery division of The Fletcher Works, Inc.

Addition of Robert Small and John Boeing to the textile sales staff, chemical products group, has been announced by **Minnesota Mining & Manufacturing Co.** Headquarters for both will be at the offices of the 3M International division, 99 Park Ave., New York City. Mr. Small was previously with the Stillwater Worsted Co., and Mr. Boeing recently joined the 3M staff from J. P. Stevens and Co.'s merchandising staff.

Nicholas J. Mead has been elected treasurer and a director of **Morningstar, Nicol, Inc.,** a promotion from the post as acting treasurer of the firm.

**The Mount Hope Machinery Co.** is enlarging the floor space of its home plant at Taunton, Mass. New construction, which is well under way, will increase shipping facilities, house an enlarged engineering department, and provide additional general office space.

William H. Cochrane has been elected president of **Neptune Meter Co.,** succeeding Dante E. Broggi.

The **Otis Elevator Co.** announces the formation of **The Baker Industrial Truck Division,** Cleveland, Ohio, and

the dissolution of The Baker-Raulang Co. No change in method of operations is planned. Eugene Caldwell, formerly president of the Baker-Raulang Co., will be the general manager of the new division with headquarters in Cleveland.

**The Pittsburgh Corning Corp.** announces the appointment of William H. Polk as manager of glass block and Foamglas building insulation sales in the firm's Philadelphia district office.

Ground has been broken for a new plant to be built at Waynesville, N. C., for **Proctor & Schwartz, Inc.** Situated on a 27½ acre site along the Southern Railway track between Waynesville and Lake Junaluska, the building will provide 72,000 sq ft of space to be used first for the manufacture of textile fiber processing machinery.

**Parrott & Ballentine,** manufacturer's agents, announce the addition to their staff of George A. Poteat who will cover Georgia, Alabama, Tennessee, Kentucky, Louisiana, Mississippi, and Texas, with headquarters in the Atlanta, Ga., area.

Robert C. Hartzog (second from right) accepts the first $2000 scholarship from Texize Chemicals Inc., awarded to a freshman entering the Clemson College School of Textiles. The scholarship is paid in equal parts through four years of satisfactory work. L to r: H. Betts Wilson, Clemson field representative; W. J. Greer, Texize president; Mr. Hartzog, and W. N. Klein, Jr., vice-president in charge of the company's textile division.

Commercial production and research progress on Marlex 50 polyethylene indicates that textile manufacturers will be using millions of pounds of this new synthetic fiber within the next 14 months, according to **Phillips Chemical Co.** U. S. textile producers are said to have informed Phillips, developers and first commercial producers of the resin, that they are about to go into full scale production after months of testing and market research. Among the first consumer items expected to be made of this material will be rope, seat covers, upholstery, and decorative fabrics.

Charles D. Herbert is new eastern regional sales manager covering all **Reliance Electric & Engineering Co.** sales activity in the Boston, New York, and Philadelphia districts; Emory G. Orahood is southeast regional sales manager, covering the Atlanta, Charlotte, and Birmingham districts; William K. Schlotterbeck is southwest regional sales manager covering the Houston, Dallas, and St. Louis districts; and R. O. Herbig is central west regional sales manager covering the Chicago and Detroit districts.

Metallic yarns, in both filament and staple forms, produced by **Reynolds Metals Co.** hereafter will be identified primarily by the registered trademark "Reymet."

Germinal N. Giraudi, textile consultant, has joined **Roberts Co.,** Sanford, N. C., as a vice-president in charge of foreign operations and director of yarn and fabric development.

**Sandoz, Inc.,** has acquired the stock of **Fine Colors Co.** of Paterson, N. J., complementing its production of dyestuffs, textile chemicals, and pharmaceuticals. Fine Colors will continue to operate unchanged as a division of Sandoz, and extended research and testing facilities are planned for further improvement of pigments used in inks for textile printing, crayons, etc. * * * Dr. J. W. Luthy has been promoted to director of applications for the dyestuff and chemical divisions, a post in which he will be responsible for all research and development including customer service on technical problems.

H. Grady Thrasher has been elected vice-president of the **Southern Airways Co.** Mr. Thrasher is general manager of the company's test and development division at Fort Rucker, Ala.

**Southern States Equipment Corp.** has announced the beginning of an expansion program which will cost more than a quarter of a million dollars. To be included in the new facilities will be a modern steel and masonry structure of approximately 25,000 sq ft to provide additional facilities for the manufacture of the firm's line of coilers, conversions, card drives, comb boxes, and other textile equipment.

**Star Woolen Co.,** Cohoes, N. Y., announces the appointment of Ellis Johnson as southern sales representative, with headquarters in Atlanta, Ga.

Laboratories for testing, development, and research control of the shrinkage properties of wool materials have been established by **Stevensons (U.S.A.) Inc.** at 1006 Charles St., North Providence 4, R. I., under the name "Dylanize Laboratories."

**Textile Machine Works** has announced the following changes in its officer group: Louis R. Thun from executive vice-president and treasurer to chairman of the board; El Roy P. Master from secretary to president; Frank B. Hower from assistant secretary to secretary; and Robert J. Ryan from assistant treasurer to

## SUPPLIERS News
WHAT THEY ARE DOING

treasurer. Mr. Master succeeds as president Richard C. Wetzel who wished to be relieved of full-time duties at Textile in order to have more time to devote to his many other interests. Other officers are: E. William Kaul, vice-president-manufacturing, and Norman E. Richards, vice-president-braiding.

**Turbo Machine Co.** announces the appointment of Parrott & Ballentine, Greenville, S. C., as their exclusive sales agents in the South for their entire line of textile machinery, which was increased by the recent purchase of Smith-Drum Co. by Turbo.

**Taylor Fibre Co.** has moved its New England branch office from West Newton, a suburb of Boston, to 967 Farmington Ave., West Hartford, Conn. Telephone number is Adams 6-3278. Charles R. Whitehorne is district manager; James R. Ratchford, Robert H. McEvoy, and Charles C. Currier, Jr., are sales engineers for the New England territory.

E. H. Kittredge, Jr., has been named executive vice-president of **Texize Chemicals, Inc.** He was formerly vice-president and general manager of the Texize consumer products division of the firm.

Charles E. Hoffman of Atlanta, Ga., has been appointed to the position of sales service manager at the Griffin, Ga., plant of **Stowe-Woodward, Inc.** * * * David T. Barry of Dover, Mass., has been promoted to the newly-created position of general sales manager of the company.

Mr. Hoffman

Three technical representatives recently transferred by **Union Carbide Chemicals Co.,** division of Union Carbide Corp. are Clair S. Mitch to the Chicago district, Robert G. Short to the Charlotte district, and Carl N. Spagnuolo to the Philadelphia district.

**U. S. Gauge Division,** American Machine and Metals, Inc., announces the appointment of Robert V. Dallis as manager of the company's office at 3105 Roswell Road, N.E., Atlanta, Ga.

**Universal Winding Co.** has received two substantial repeat orders for Unifil loom winders. Three thousand units were ordered by Amerotron Corp. Dover Mill Co., Shelby, N. C., ordered 130 to complement the 230 units they have had under evaluation for the past several months.

J. Frank Forster is the new president of **Vickers, Inc.,** a division of the Sperry Rand Corp. Mr. Forster succeeds Kenneth R. Herman who has been elected to one of two newly created offices of executive vice-president of the Sperry Rand Corp.

Stephen Nye has been promoted to the newly created post of manager of southern textile application laboratories of the **Warwick Chemical Division, Sun Chemical Corp.** He will be located at the Rock Hill, S. C., plant to provide on the spot technical services on application problems to augment the company's expanded textile chemicals program.

Mr. Nye

The Textile division of the **McKiernan-Terry Corp.,** Dover, N. J., announces the purchase of the textile machinery division of **Wiesner-Rapp Co., Inc.,** of Buffalo, N. Y., under the terms of which the former has received all textile machinery patents, engineering drawings, tools, fixtures, inventory, and records.

As part of the expansion program


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of the textile marketing services of **Werner Textile Consultants.** Winston Sizer has joined the marketing staff as a senior consultant. Mr. Sizer was formerly vice-president in charge of sales and marketing for Albany Felt Co.

Opening of a new field sales and service office at Needham, Mass., for the textile machinery division of **The Warner & Swasey Co.** has been announced. The new office, located at 20 Chestnut St., will replace the company's previous New England sales and service facilities at North Uxbridge, Mass. George M. Phoenix, formerly field engineer in North Uxbridge, will assume similar duties at the Needham office. * * * Fourteen shuttleless wire weaving machines were recently purchased for installation in the Covington, Ga., plant of Dodge Wire Corp.

Formation of a separate division to supply automatic continuous processing equipment to the textile and other industries has been announced by **National Cylinder Gas Co.** Designated the Girdler Process Equipment Division, it will produce Votator heat exchange equipment and Thermex high frequency dielectric heating equipment. Other new divisions are: the NCG Division for production of oxygen, nitrogen, hydrogen, carbon dioxide, welding equipment, etc.; the Chemical Products Division for production of specialty catalysts, organic pigments, etc.

James F. Cairns is now chief chemist of the textile fibers laboratory of **Nopco Chemical Co.,** having been promoted to that post from salesman. Succeeding Mr. Cairns in North Carolina is William F. Dolan.

Formation of a knitting products division has been announced by **Uster Corp.** The purpose of the Knitrol Division is to engage in engineering, manufacturing, and marketing of specialized precision equipment for the knitting industry. Among the products to be offered are an automatic trimmer for seamless hosiery machines and special equipment designed to increase the efficiency and productivity of full-fashioned seamers.

Recently promoted to branch manager of the New York sales and service branch of Yale Materials Handling Division, **The Yale & Towne Mfg. Co.,** was Philip R. Van Duyne, Jr., who for the past four years served as sales manager in that office.

## Cross dyeing technique *(from page 148)*

Stoll, director of the Celanese textile applications and product development laboratories in Charlotte.

Greater flexibility and economy for the converter were described by Dr. Stoll as the main advantages of this development. The converter, he said, may readily prepare fabric color combinations to meet changing style demands from a single grey goods inventory that does not become obsolete. The single dye bath method of creating multi-color fabrics is also more economical than the alternative one of weaving dyed yarns.

Basically, Arnel is dyed by the same class of dyes as acetate. However, by the proper selection of dyes and dyeing conditions, different colors and countless numbers of related and tone-on-tone shades can be achieved by dyeing acetate and Arnel in the same dye bath.

Add to this the color styling effects obtained by the use of combination yarns plied or adjacent, plus the use of various percentages of intimate blends, and a whole series of color patterns and hues can be created.

By adding a third fiber such as rayon—which can be reserved or dyed any other contrasting color—it is readily evident that the color styling possibilities become truly unlimited. For example, the same fabric can contain related as well as contrasting colors.

The practical and economic aspects are reported to be particularly promising, because these color effects can be accomplished by a one-bath method, and at costs comparable for dyeing 100% acetate.

*Dyeing Principles.* Arnel and acetate show certain differences in dyeing behavior which can be used to give the following color effects:

1. The difference in dyeing rate between Arnel and acetate using selected disperse dyes gives a distribution favorable to the acetate and results in many tone-on-tone effects.

2. By the selection of certain water soluble dyes which color the acetate and produce very little color on the Arnel, marked differences in depth approaching reserve on the


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Arnel can be achieved.

3. By the use of both disperse and water soluble dyes, even greater hue differences can be created.

4. The Arnel and acetate can be union dyed with the rayon or cotton in a contrasting shade to give special styling effects.

*Effect of Yarn and Fabric Construction.* While many color effects can be developed by the selection of dyes and dyeing techniques, yarn and fabric constructions are even more important in producing multi-color and special fabric patterns. Indeed, suitable constructions plus the application of the dyeing principles herein described can produce by piece dyeing many of the shades and color contrasts such as checks, stripes, plaids and iridescent effects achievable only by yarn dyeing.

Proper constructions and suitable designs permit the weaving of large quantities of grey fabrics that can be subsequently dyed to get the varied color and styling requirements of the market. Limited design and fabric construction experience permits the following helpful suggestions:

1. Where brightness of color is desired, the use of fabrics with bands of yarn of one fiber or spot weaves on plain grounds are recommended.

2. For maximum color contrasts, checks, plaids, and stripe effects should be used.

3. Interesting surface effects can be obtained at the intersection of yarn bands, particularly where used in conjunction with fancy weave design.

4. Designs taking advantage of face effects are particularly adaptable to this multi-color technique.

5. The judicious use of float yarns produces many variable color effects.

6. When plied yarns are used, it has been observed that unless the twist level is near zero, heather rather than clear contrast colors are produced.

7. When using yarns made of intimate blends, color contrasts often give subtle union colors related to, but not identical with, that of the individual fiber. The diversity possible by the application of this three-fiber technique to intimate blends is infinite. However, it is quite difficult to predict the shade or hue of color obtained from this variety of blends in different fabric constructions. The resulting colors and shades must in many cases be determined by trial and error.

8. In slub fabrics, this technique permits another degree of style versatility since the same fabric may contain slubs in a contrasting as well as related shade.


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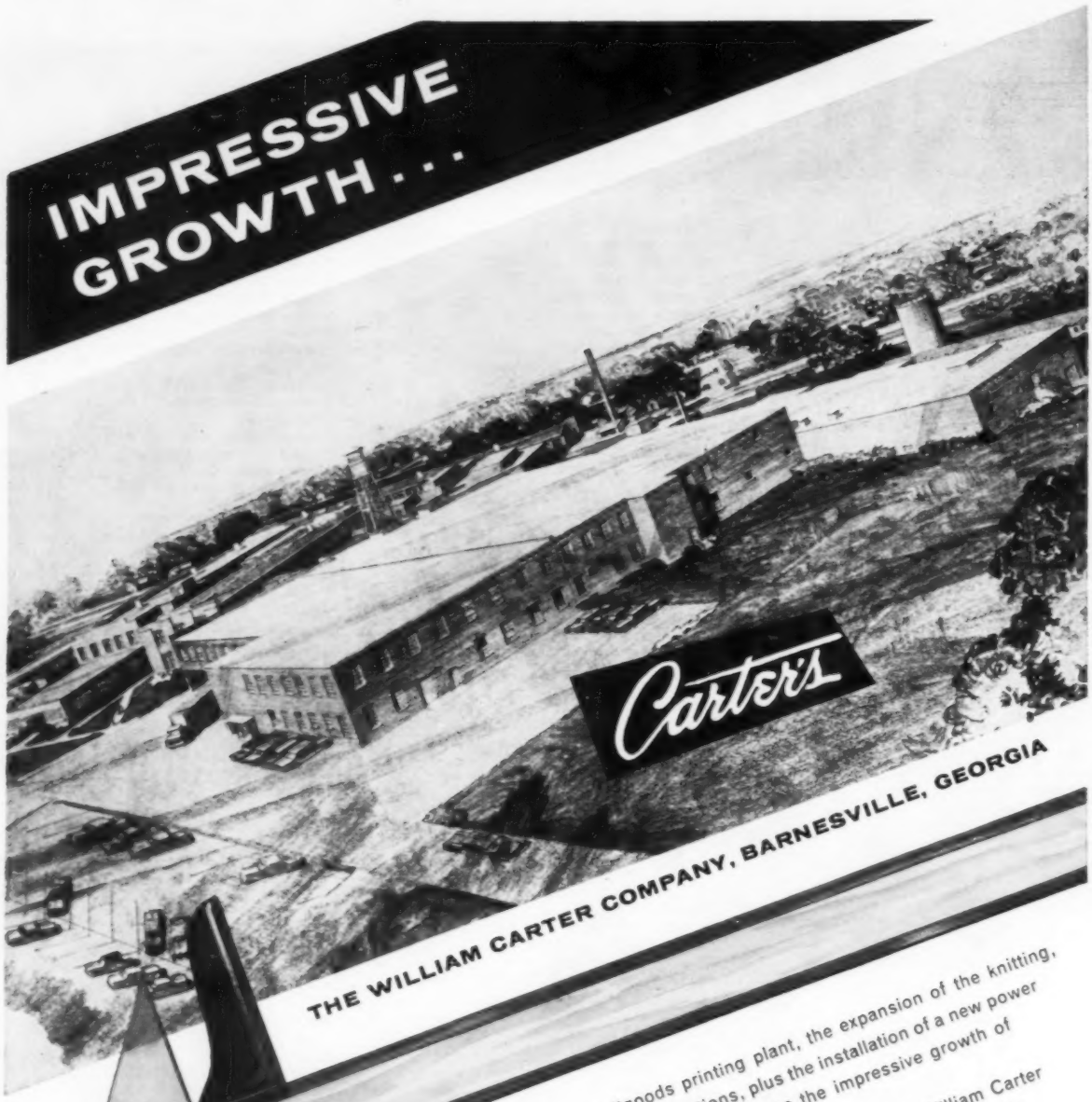


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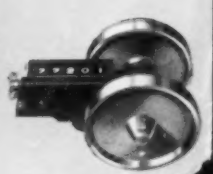

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